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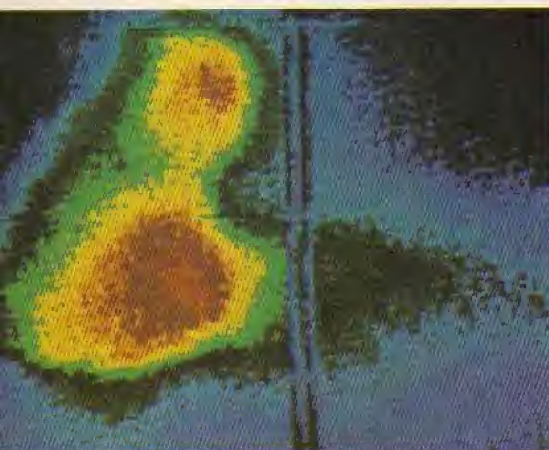
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Cover Photo © Paul Chauncey/
The Stock Market



Y'all Comer Back Now!

This image, sent to Earth by a passing spacecraft, shows the core of Halley's comet. The comet probably looked lots different to you.

When Comet Halley comes back in 2062, folks will want to know what you saw this year, what you thought of the comet and what you expect next time around.

Kids 10 and under can send a drawing, a page of writing, or a one-minute tape about Halley's comet to:

The Planetary Society
65 North Catalina Ave.
Pasadena, CA 91106

They'll hold your answers for the people of the future.

Choo Choo Chunnel

The longest underwater tunnel in the world will soon dip below the English Channel. The Channel Tunnel, or "Chunnel," will stretch 23.3 miles under 130 feet of water. It'll carry trains from England, an island, to France, on the continent of Europe.

The Honest Poop

Now you can take a piece of the zoo home with you. It's called "Zoo Doo," and it's just what it sounds like. Zoos all over the U.S. sell it—in big bags or little ones, in cans or by the truckload.

Zoo Doo is good for a laugh, but it also makes great fertilizer for flowers and vegetable gardens. Most Zoo Doo-makers start with the basic stuff, produced by lions and llamas and all the other animals in the zoo. Humans mix in zoo leftovers like straw, leaves, and food waste.

Then they compost it. That means they pile it, add water, and leave it to sit. After several months, the contents break down into fertilizer.

Some zoos sell Zoo Doo pure and fresh. At the Washington Park Zoo in Portland, OR, you can buy a six-pack of elephant poop-in-a-can.

"It's totally natural," says Anne Brown, a zoo official.



PHOTO: RICHARD KOLAR/ANIMALS ANIMALS



Solar Bears

All day long, sunlight pours onto the Earth. But how can people catch that solar energy and put it to work?

Polar bears may be wearing one answer all over their bodies. It seems that polar bear hair does a near perfect job of collecting energy from the sun, holding onto it and using it to keep bears warm.

Scientists hope that the secrets of polar-bear hair may someday help keep human homes warm. It's a hot new discovery—fur sure!

Forever Bright

Now there's a light bulb that's guaranteed forever!

Every light bulb has a special wire inside. It's called a filament. Electricity flows through the filament and makes it glow. When the filament breaks—no light.

ILLUSTRATION BY STEPHEN BERGER

Heat and vibration inside the bulb weaken the filament. The new bulb is designed so the filament vibrates less. That way, it lasts longer, and so does the bulb.

The bulb costs about five times as much as a regular light bulb. But will it really last forever? Despite the guarantee, the bulb's makers say 50 years is more like it. If their bulbs last that long, they don't think anyone will complain.

The Moon, Mars and Millions

- A million Earthlings will travel in space every day.
- "Ferries" will carry passengers between space stations.
- Humans will live year-round and mine for valuable minerals on the moon and on Mars.

It's all possible by the year 2036, says a report prepared for President Reagan by a panel of space experts. The President asked the experts to chart a course for the next 50 years of space exploration.



Yum Yum

In Turkey, it's a fine, whitish powder. In the U.S., it's a lump that looks like brown sugar. It's a day's worth of food, whipped in a blender, then freeze-dried.

Scientists are studying freeze-dried food from 15 different countries to figure out what people eat, chemically speaking.

"You are what you eat," says Dr. G. V. Iyengar, a leader of the study. Eating healthy food is the best way to get the chemicals your body needs. By studying food, scientists hope to help the whole world eat better.

Over 200 different foods go into the U.S. mix. Other countries have less variety. In Turkey, people eat mostly rice. That explains the light, white powder.

Twinkle, Twinkle

Not all the stars are up in the sky. Just a few months ago, for one fifty-trillionth of a second, there was one in California.

Nope, not a movie star—a real artificial star! Scientists at the Lawrence Livermore National Laboratory aimed the world's most powerful laser beam at a clear ball only half as thick as a human hair.

The laser zapped the ball with enough electricity to power 2 billion 60-watt light bulbs. The chemicals inside the ball burst into a tiny star six times hotter than the center of the sun. But then, in a twinkle, it was gone.



PHOTO: GARY STONE/LAWRENCE LIVERMORE LAB



So What's New?

You tell us—and you'll get a nifty CONTACT T-shirt—if we print your story. Send us any science stories from the news that have to do with the future. (Be sure to tell us where you heard the story.)

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What's the Beef with FAST FOODS?

by N. Carraway

Experts Talk About a Meaty Subject

It's Saturday and it's lunchtime. You had a hard week at school. Nobody deserves a break today more than you! So you walk into your neighborhood fast-food restaurant and order your favorite stuff: a double burger with cheese, a large fries, and a chocolate shake. "And please don't hold the mayo!"

Does this sound like a typical lunch to you? It may, because every day more than 45 million Americans sink their teeth into fast foods: juicy burgers, crunchy french fries, crispy chicken nuggets, fried fish sandwiches and cool 'n' creamy shakes. These fast foods may be mouth-watering, and they *do* make eating easier for people on the run. But a recent report says that some fast foods can cause serious health problems.

According to a report by the Center for Science in the Public Interest (CSPI, for short), food in some of the biggest fast-food chains contains a lot more fat than is good for you. (These restaurants include McDonald's, Burger King, Hardee's, Wendy's, Arby's, Big Boy and Popeye's.)

The Fat of the Land

"U.S. agencies and other groups concerned with good health and nutrition say people should be eating less fat—not more. According to the CSPI, Americans should eat no more than 67 grams (about two ounces) of fat a day.

"Some fast-food restaurants have 67 grams or so of fat in just one meal," says Bonnie Liebman, a nutrition expert. "You start with the burgers, which have fat as they are. Then cheese is put

on, adding still more fat. Then you get double burgers and double cheeseburgers, along with sauces, which are sometimes made of mayonnaise." (Mayonnaise is made with lots of fatty ingredients.)

For instance, a Burger King double Whopper with cheese has 61 grams of fat—all by itself. At McDonald's, a Big Mac has about 34 grams of fat. A packet of french fries has just over 11 grams of fat. (A baked potato has 0 grams of fat.)

Fat Facts

Of course, people need some fat. It provides energy and keeps the body working. It helps to form cells and provides important chemicals.

But certain fats also make your body hold on to cholesterol (koh-LESS-ter-all)—a substance your body makes itself and also gets from animal foods like eggs, milk, fish—and burgers.

Your body needs some cholesterol, but when there's too much, it can collect on the inner walls of arteries—the tubes your blood flows through. Too much cholesterol makes the arteries narrower. In adults, that can lead to serious heart diseases. It can be deadly.



PHOTO © NANCY J. PERCEPHOTO/RESEARCHERS, INC.

Above: Every day, some 45 million Americans bite into fast foods.

Left: When you go to a fast-food restaurant, ask if they have a guide to what goes into their foods. That way you'll know what you're eating.



PHOTO: BETT FROMER/SHOOTAL ASSOCIATES

"Most people don't start worrying about their diet until they're middle-aged and their friends start having heart attacks," says Bonnie Liebman.

But, says Ms. Liebman, the time to start cutting down on fat is when you're young. Doctors have discovered that some kids as young as four have too much fat in their bodies.

Fast Food Fat

The biggest cause of fat in fast foods isn't in the beef—though there is fat there, too. The problem is the beef *tallow* that some foods are fried in. Beef tallow is oil made from melted-down animal fat. It locks in more cholesterol than oils made from vegetables. Health experts and doctors say beef tallow is bad news for ➔

adults and for kids.

Why do fast food chains use cholesterol-rich beef tallow if it's no good for you? For one thing, it's not very expensive, so it helps fast-food places keep their prices down. It fries food well. And many fried-food freaks say it tastes great. It's so popular in fact, that in 1984, 1.3 billion pounds of the oil were used for cooking.

"We use the highest quality of beef and vegetable shortening in our fries, because it produces the highest-quality product and the best-tasting one," says Terri Capatosto. She is a spokesperson for McDonald's—the largest chain of fast-food restaurants in the U.S.

Jo Hutcherson, a spokesperson for Burger King, says that Burger King has changed some of the oils in which they fry foods. "In March, we switched to vegetable oil for all fried foods—except french fries," Ms. Hutcherson told CONTACT. "We still cook the fries in a combination of beef tallow and vegetable oil because our customers like the taste better."

A Salty Subject

Cholesterol isn't the only problem. Many fast foods contain salt. Salt contains a substance called sodium which doctors say can cause high blood pressure in some people. Doctors recommend that adults eat between 1,100 and 3,300 milligrams of sodium per day. That's between one-half and one and one-half teaspoons. A single Burger King Whopper or similar sandwich

Below: If you like mayonnaise on your burgers, use just a tiny bit. Mayo is made with egg yolks and oil—two ingredients rich in cholesterol.



PHOTO © RICHARD HUTCHINGS/PHOTO RESEARCH, INC.



Last year, about 22 per cent of the U.S. potato crop was used to make french fries.

contains about 1,000 milligrams of sodium. Just one fast-food meal can supply a whole day's portion of sodium.

Fast foods are chockful of sugar, too. There's sugar in the ketchup and there's sugar in the burger buns. There are about nine teaspoons of sugar in the average 12-ounce cup of cola. Too much sugar leads straight to tooth cavities.

Dr. William Castelli, the medical director of a heart study project in Massachusetts says there is a connection between salty, fatty, sugary and greasy fast foods and serious diseases.

"The high-fat, high-salt meals that kids are encouraged to eat may lead to health problems, from overweight to high blood pressure and heart disease," says Dr. Castelli.

But if kids start eating healthy foods now, they'll build eating habits that can help them avoid health problems when they grow up.

PHOTO © RICHARD GROSS/THE STOCK MARKET

Know What You're Eating

Part of the problem is that fast-food freaks don't even know what they're putting into their bodies. That's one reason why New York state has asked its lawmakers to pass a law to require fast-food restaurants to label the ingredients of their food on the wrappers, packages or containers.

A New York state official, Richard M. Kessel, says, "Consumers have a right to know what they are eating, particularly whether that food is loaded with fat and salt."

Some fast-food places say they're trying to help. Jo Hutcherson of Burger King told CONTACT, "We have a nutrition guide to our foods. It's free and you can pick one up in any of our U.S. restaurants. That way, at least you'll know what's in the foods you order."

Other fast-food restaurants, including McDonald's, have come out with such guides. They all should, says Dr. Norman Charles of New York: "If people know what they're eating, and eat less of fatty fast foods, they'll be a lot better off. And if people know what's in the food they are eating, they may not order the double cheeseburger and a large fries."

Instead, folks may start ordering baked potatoes and crunchy salads. Oh yes, and the order of the day may be "Hold the mayo!" **620**

PHOTO: TOBY HUGHES/BRUCE COLEMAN INC.



Above: Think milk—instead of milkshakes. A milkshake has the same amount of fat as a glass of regular milk. But a shake has as much sugar as a can of pop, as many calories as a can of pop and a glass of milk combined.

Left: Most fast-food french fries are cooked in fatty beef tallow. They may taste good, but it's better to switch to a baked potato!



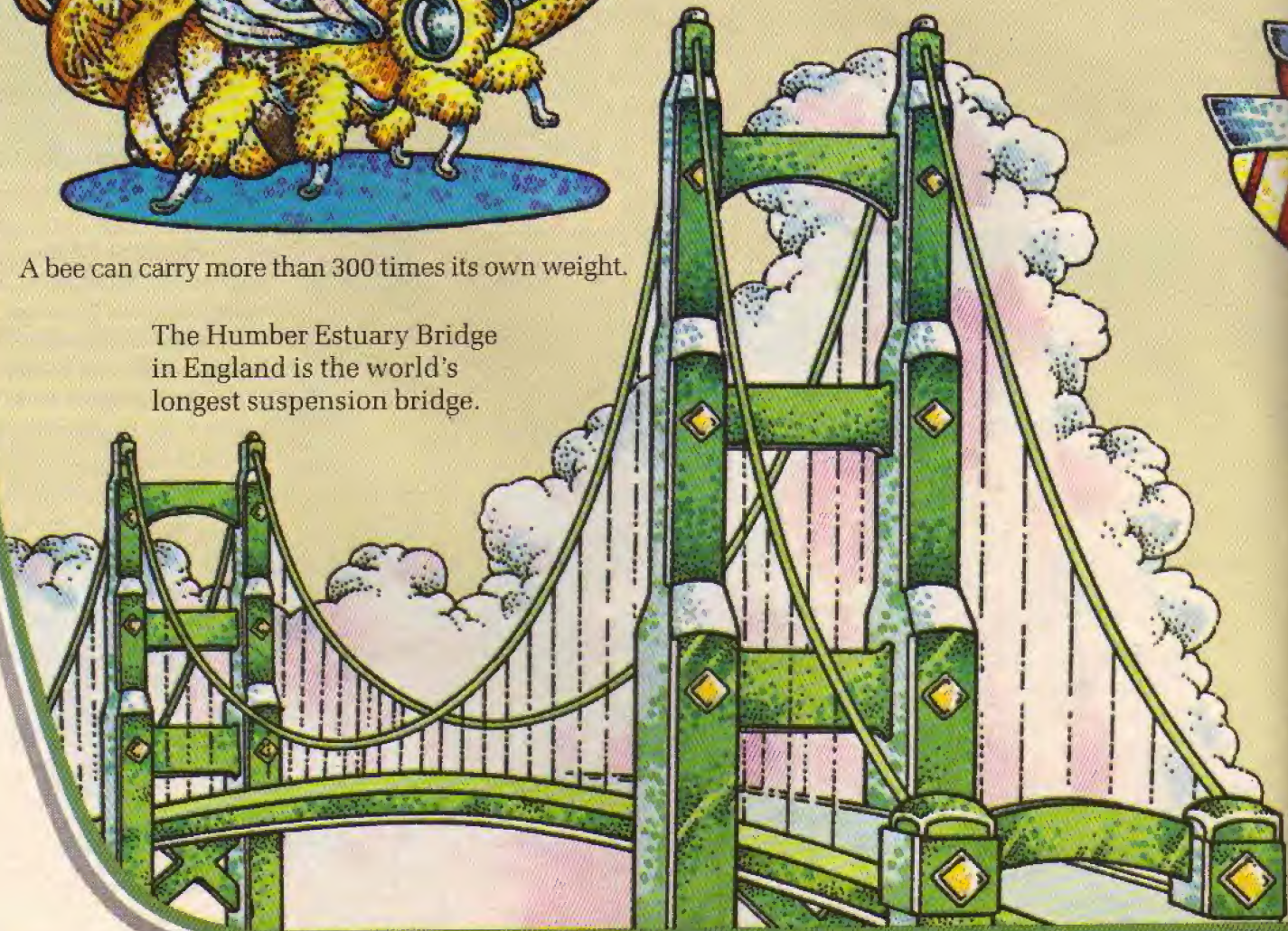
PHOTO: CAMERIQUE STOCK PHOTOGRAPHY

Factoids

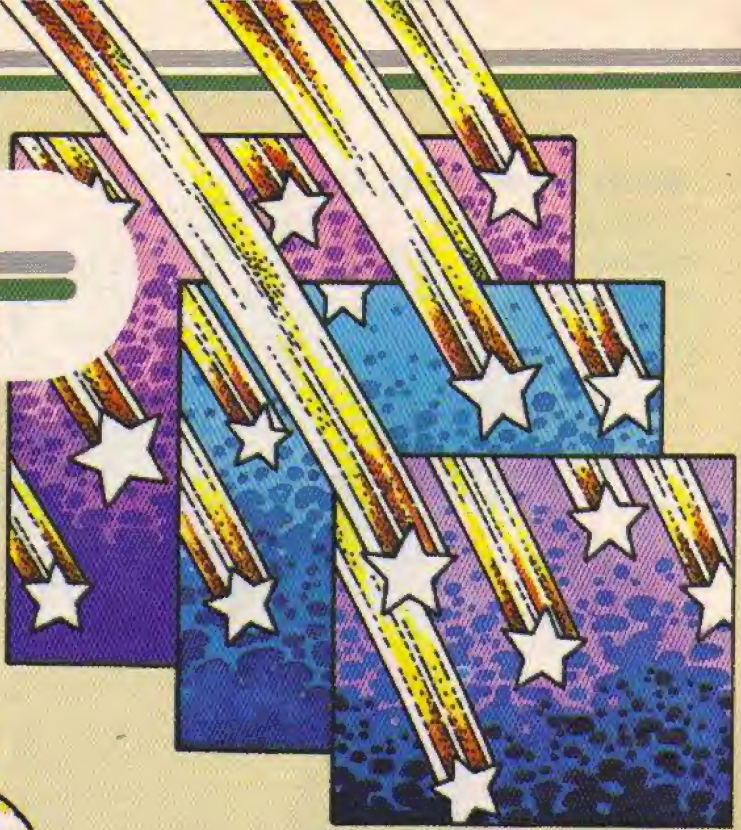


A bee can carry more than 300 times its own weight.

The Humber Estuary Bridge in England is the world's longest suspension bridge.



ILLUSTRATIONS BY JOHN NIEZ

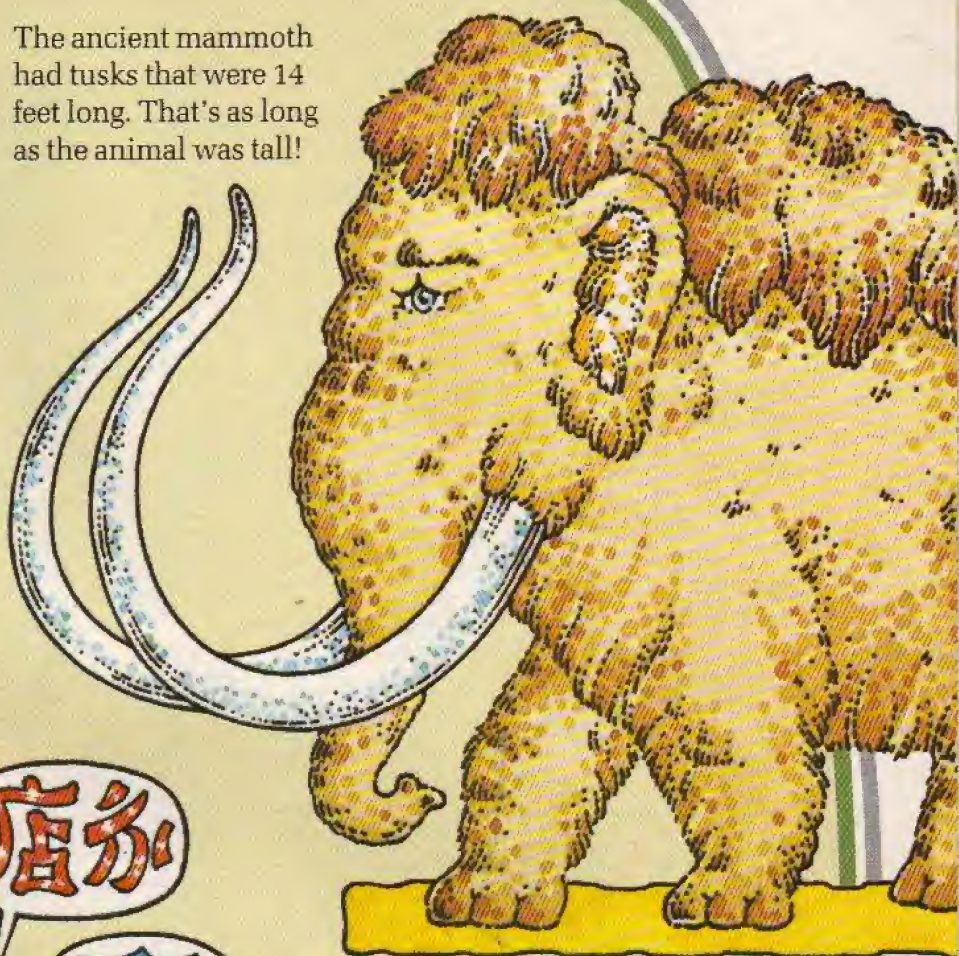


The largest meteor shower on record occurred in 1833, when 10,000 shooting stars were seen in one hour.

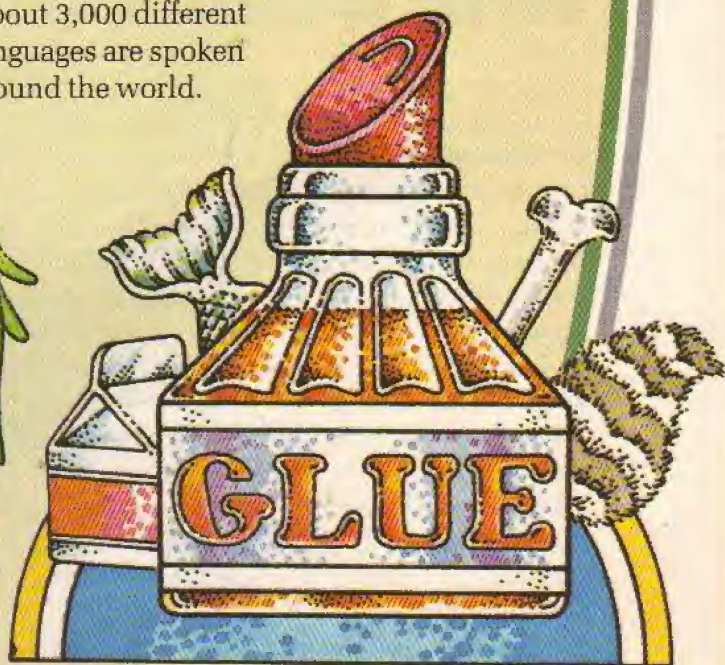


An average-sized thundercloud holds about six trillion raindrops.

The ancient mammoth had tusks that were 14 feet long. That's as long as the animal was tall!



About 3,000 different languages are spoken around the world.



Animal skin and bones, fish and milk can all be used to make glue.

BUG MAN!

by Wendy Williams



A SCIENTIST WHO MAKES STARS OUT OF INSECTS

LIGHTS! CAMERA! ACTION! You're the director of a new movie. You need 3,000 African locusts for one of your scenes. Who are you going to call? Steve Kutcher! Mr. Kutcher, a biology teacher from Pasadena, California, is buggy about insects. He lives with them, talks about them, eats them (but more about that later!), and collects them for the movies. In fact, he is known as the "Bug Man of Hollywood."

For the movie "Exorcist II," he put locusts on an actor's face. The job was difficult.

"Insects can't be trained like a dog or a cat," Mr. Kutcher told CONTACT. "But since I'm an insect specialist, I know how insects behave. I know how they will react in certain situations. For instance, locusts (and honeybees and butterflies) will move toward light and heat, so I put a lamp near the actor's face. This made the locusts cling to him. Then I turned off the lamp. The

locusts stayed in place for the filming."

The locusts used for "Exorcist II" were shipped from England. But many times, Mr. Kutcher finds the insects himself. "You just have to know where to look," he says. "It's like being a detective or a small game hunter."

Recently, Mr. Kutcher collected 100 monarch butterflies for a TV commercial. Because he is a trained entomologist (a person who studies and collects insects), he knew that the butterflies could be found near milkweed plants.

Butterfly Garden

Where's the nearest milkweed plant? In the Bug Man's backyard. "I planted a butterfly garden," explains Mr. Kutcher, "milkweed, broccoli, and mustard greens. Butterflies are attracted to these plants."

After collecting the butterflies, he brought the reddish-brown insects to the movie set for but-

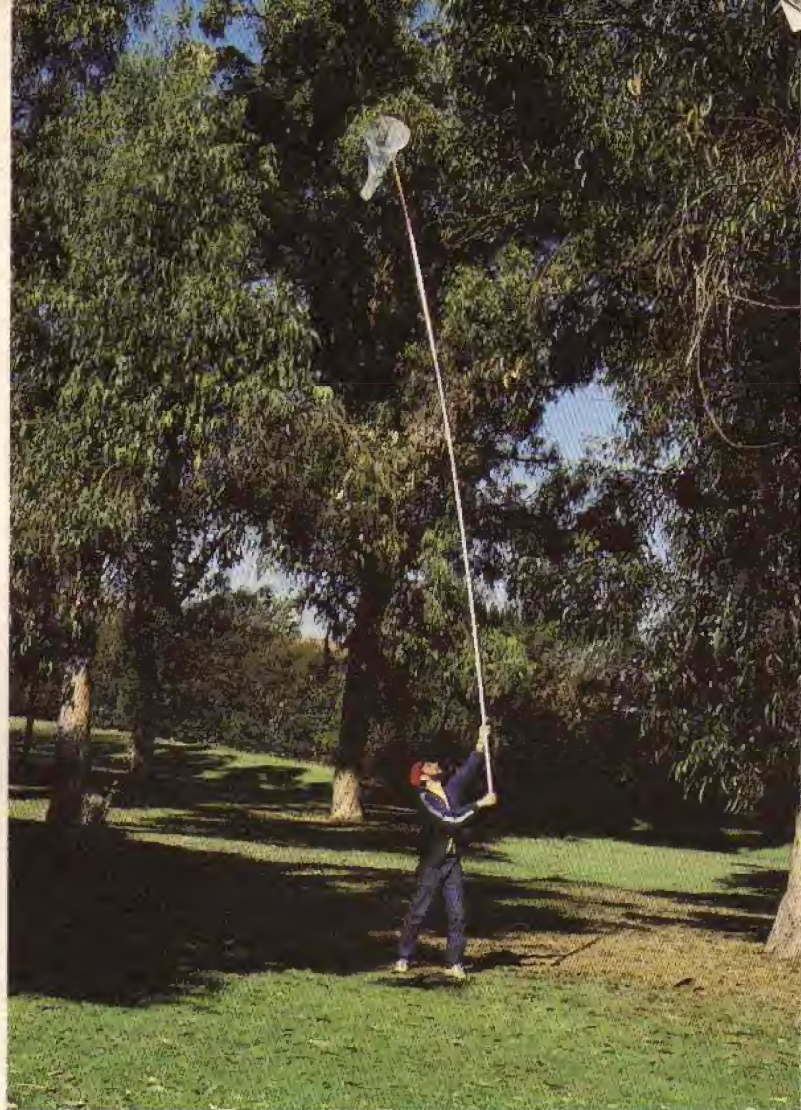
Left: Steve Kutcher introduces two kids to the world of caterpillars.

terfly "auditions." "Different types of butterflies fly in different patterns," he says. "So I had to find butterflies who would fly the way the directors expected them to!" Thirty butterflies were chosen for the job.

And what did the 30 butterflies get for their efforts? A six-week stay in Mr. Kutcher's refrigerator! "Part of my work is keeping the insects alive when they are off the set," he explained. "Butterflies are cold-blooded, so at the end of each day, I put them in my refrigerator to slow down their development. Of course, I took out all the food first!"

Recently, Mr. Kutcher collected even more butterflies for "The Golden Child," a new movie starring Eddie Murphy. He collected 40,000 carpenter ants for a "Wonder Woman" TV show. He also gathered cockroaches for another movie and beetles for a TV commercial for an oil company. Mr. Kutcher was responsible for the fly on Arnold Schwarzenegger's head in "The Terminator." And, of course, he gathered—and bossed—the flies in the movie, "The Fly." ➔

PHOTO STEVEN KUTCHER



Above: A 15-foot butterfly net helps Mr. Kutcher catch some insects.

Left: A close-up look at roaches.



Kid Collector

Mr. Kutcher can't remember a time when he didn't like insects. "My earliest memories are of collecting fireflies when I was four or five years old. I enjoyed being outdoors and it was a good way to keep my relatives off my back. If they came to pinch my cheeks, I could always pull out my spiders!"

In addition to his movie and TV work, Mr. Kutcher teaches a class called "Living with Insects." Students learn all about insects and their contributions to our everyday lives. Mr. Kutcher even includes a few insect jokes like these: 1) Why do bees hum? Because they know the tune, but not the words! 2) How do bugs get to the beach? In a dune buggy!

Very corny jokes aside, Mr. Kutcher takes bug education very seriously. He is worried about insecticides (bug sprays) and their effect on the environment. And he feels that if we don't learn how to protect nature, bugs included, asphalt and cement will take over the Earth.

Hug a Bug

That's one reason why he is so devoted to helping people understand bugs and getting over their fear of bugs. "People have been taught to be afraid," he says. "The fear is unnecessary. When a bee flies into a room, everyone screams. But all that bee is trying to do is get back outside.

"Sometimes," he continues, "people tell me that they're afraid of bugs because they think bugs will devour the Earth. Certain bugs are very adaptable, and they can reproduce very quickly. But people seem to forget that we have little to fear from insects. We're smarter than they are, though insects aren't dumb by any means!"



PHOTO © GAMMA LIAISON/ERIK SANDER

Above: The Bug Man encourages kids to do hands-on activities with tarantulas.

Left: Mr. Kutcher is so buggy about bugs, he doesn't seem to mind when one crawls on his face.

Mr. Kutcher finds that once people see insects up close, they aren't so afraid. For this reason, he always takes his pet tarantula, Dolores, to the classroom. So far, Dolores has shaken "hands" with more than 2,000 elementary school kids. But first, the kids learn a few things about her. "Tarantulas only bite when someone tries to pull off one of their legs or squashes them," Mr. Kutcher tells each class. "They definitely do not see humans as food!"

As a matter of fact, just the reverse is true. Some people see insects as food. "Insects are tasty," the Bug Man told CONTACT. "I've eaten grasshoppers, mealworms, crickets and termites. My favorite insect dish is the larva of honeybees. I boil them up and pop them into my mouth. They have a nutty taste."



PHOTO © RICHARD A. HEWITT



PHOTO © GAMMA-LIAISON/ERIC SANDER

Right now Mr. Kutcher is trying to start up an insect museum in California. "A museum would make it easy for lots of people to see insects up close and to learn about them," he says.

Right now, Mr. Kutcher keeps an insect zoo in his home. It's made from paper cups and boxes. Current residents include: live grasshoppers, a praying mantis, six types of tarantulas, black widow spiders and caterpillars. Just for the fun of it, he also keeps a beehive full of bees!

In addition, he collects objects with insect designs on them: Everything from towels printed with butterflies to paperweights. And he drives a VW bug! Clearly, Mr. Kutcher is a man who likes his buggy life. "Not too many people do this kind of thing," he says with a laugh. "But it's important to show people that insects can be pets, not pests!" 🐞

Left: "Some of my best friends are tarantulas!" Steve Kutcher laughs.

Below: Mr. Kutcher and his wife get a good look at some butterflies in their butterfly garden.



PHOTO © RICHARD P. HEWITT

Postcards from Another Planet

by Russell Miller

Nine years ago, the spacecraft Voyager 2 set out on a trip. It won't be coming home to Earth—but it's sending back amazing postcards.

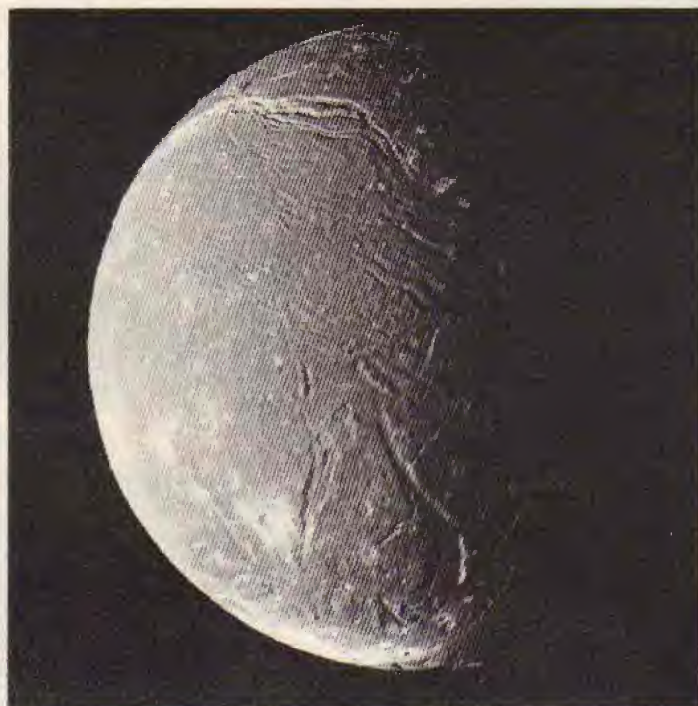
In January, *Voyager* spent a few days near Uranus, the seventh planet from the sun. (Uranus is about 1,800,000,000 miles from Earth.) The pictures you see here are just a tiny sample of the 6,000 photos *Voyager* snapped while it whipped past Uranus, nine times faster than a speeding bullet.

The information *Voyager* sent back was packed with surprises. Dr. Ellis Miner, one of the *Voyager* project scientists, told *CONTACT* that it could take 10 years to study all the news and figure out what it means. Here are a few of the new discoveries:

- Uranus is made up of a blanket of gases thousands of miles thick, with a center of water, ice, and fiery hot liquid rock.
- Scientists knew Uranus has 5 moons—*Voyager* found 10 more!
- Days on Uranus are only 17 hours long.

Voyager has already left Uranus far, far behind. Next stop, the planet Neptune—in 1989!

Below: Computer scientists put four different images together to create this picture of Ariel, one of Uranus's 15 moons. Some of Ariel's craters are six miles wide. The whole moon is only 750 miles across.

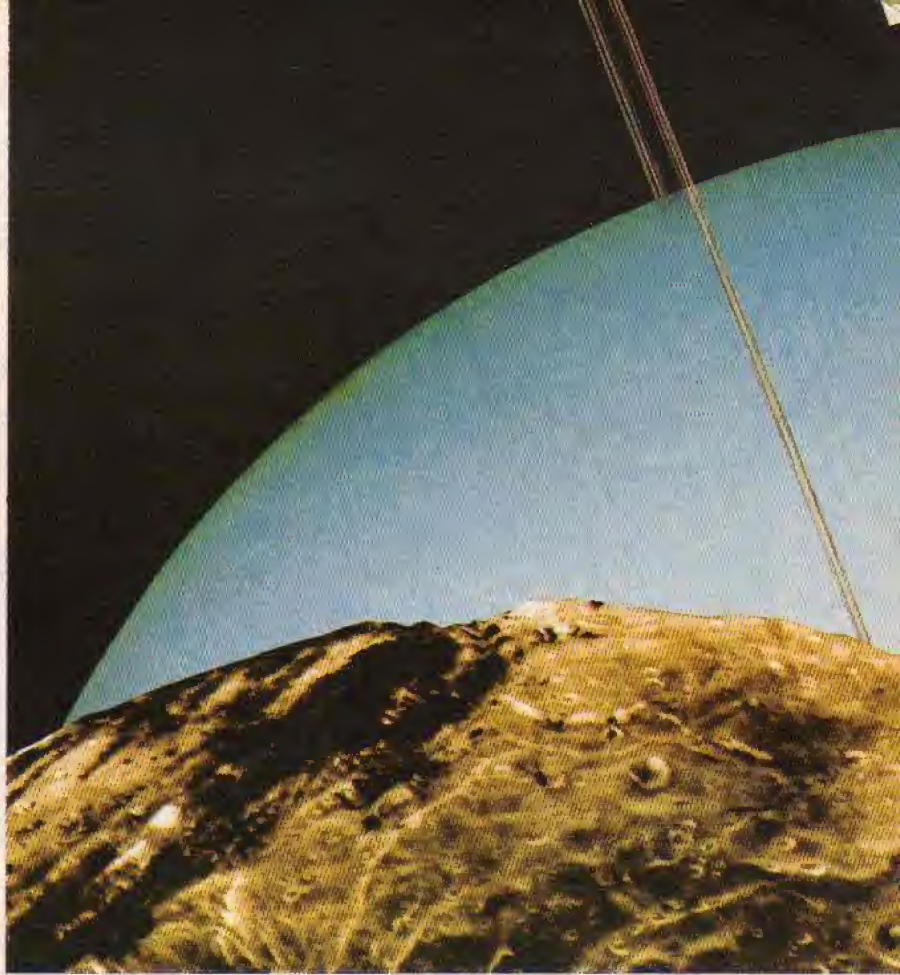


Right: This “imaginary” picture combines images of Uranus and the moon Miranda. (An artist added the rings you’d see if you were traveling toward Uranus.)

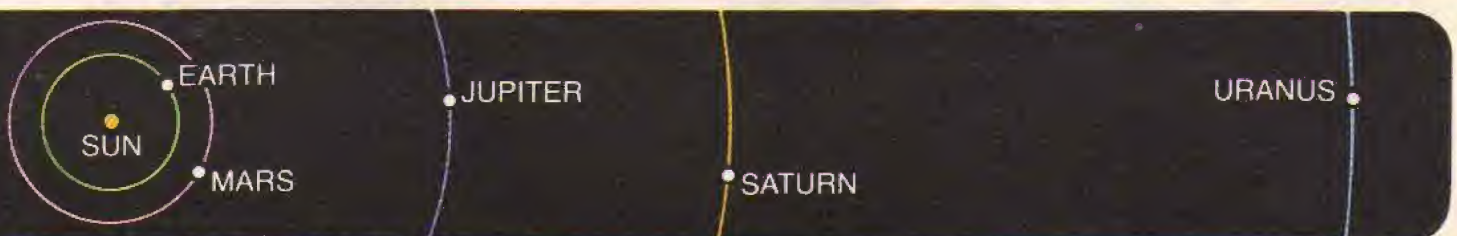
Miranda is 300 miles across. Scientists say it’s covered with mysterious patterns of canyons, cliffs and craters.

Left: Voyager 2 was already 600,000 miles past Uranus when it looked back to record this image of the blue-green planet. (The bluish color comes from methane gas in Uranus’s atmosphere.)

Below: The image on the left shows Uranus the way an Earthling would see it. The image on the right is Uranus, too, but computer experts added “false” colors to show the bands of different gases in the “blanket” surrounding the seventh planet.



PHOTOS COURTESY JET PROPULSION LABORATORY/NASA



It’s a long way from Earth to Uranus—18 times the distance between the Earth and the sun.

THE BLOODHOUND GANG

The Case of the Glowing Ghosts

by Becky Cheston



"I always thought this place was haunted," Skip was looking at 101 Arbor Street. Next to him, Vikki and Ricardo stood shivering under an umbrella. It was Halloween, but the streets were empty. It was raining hard. "There's no such thing as ghosts," said Ricardo.

"I know," Skip answered, "but it still looks spooky."

The old house did look strange. It had a tower at one corner, and it was surrounded by dark trees and bushes that rustled in the wind.

"This is silly," said Vikki, as she stepped up to the door and rang the bell.

Almost at once the large wooden door began to creak open on its rusty hinges. A bright light shone from the hallway. There stood a strange creature with silvery hair, black teeth and wrinkled green skin.

"About time you guys showed up!" the creature said. "I thought you were going to miss the party!"

Glowing Ghosts

Soon Vikki, Skip and Ricardo were enjoying the annual neighborhood costume party.

"Great party, Patty," Vikki said to their

hostess, Patty Kravitz. Vikki was dressed as a race car driver. Patty was the wrinkled creature who had answered the door.

"Yeah, it's great to be inside!" said Ricardo, with his hand in a bowl of popcorn. He was in a gorilla costume.

"And a lot safer, too," mumbled Skip, his mouth full of a candy bar. "Listen to that thunder." Skip was dressed as a cowboy.

Suddenly, there was a bright flash. A loud clap of thunder shook the entire house.

"Hey, look at that!" someone shouted as they pointed out the window.

Everyone rushed to the window and looked out. Across the street stood a tall tree. At the tips of several branches, strange flickers of blue light were dancing. As they watched, the strange lights disappeared.

"Ghosts!" Skip whispered. "This is spooky! Let's get out of here."

"Well, waddaya know! The Bloodhound Gang's a bunch of scaredy cats!" It was Tom Tyson, one half of the Tyson twins. He and his brother, Ted, were famous around the neighborhood for their practical jokes.

"Yeah, too bad the Bloodhound Gang isn't the Ghostbusters!" sneered Ted Tyson.

"Ghostbusters?" repeated Ricardo. "That has a nice ring to it."

The Green Slime

"There's got to be a logical explanation for this," said Skip.

It was an hour later, and the rain had finally stopped. The strange lights had gone, but now there were spooky noises coming from the tree across the street. The air was filled with cackling and whining sounds.

"Let's get a closer look," said Ricardo as he headed outside.

The whole party followed Ricardo across the street and watched as he began to shinny up the tree trunk. Before he reached the first branch he fell to the ground with a thud.

"It's too slippery!" he said, getting up.

Patty Kravitz took one look at Ricardo and screamed. Ricardo was covered with slimy green gook.

"He's been slimed!" Skip shouted.

"This is ridiculous!" Vikki exclaimed.

"Listen everyone," she yelled to the crowd.

"It's late and it's wet. We'll solve this mystery in the morning."

"But what are we going to do?" whispered Skip as everybody left.

"Simple," Vikki answered. "We treat this like any other mystery. Skip, you better collect some of the green slime to be analyzed. I'll come back here tomorrow and hunt for clues. Ricardo—you better track down a real ghostbuster."

"A real ghostbuster?"

"Yes," Vikki nodded. "Someone who can explain these strange goings-on—a scientist."

"We'll be back!" shouted Ricardo, looking at the top of the tree.

Suddenly there was a loud scream. Patty Kravitz was pointing to her driveway.

"So will someone else," she said. On the cement were some words scrawled in ghostly white letters: "We Shall Return."

Double Trouble

The Bloodhound Gang agreed to meet back at 101 Arbor Street the following evening. Skip was the first to arrive.

"Look, it's one of the ghostbusters!" laughed Tom Tyson. The twins were sitting on their front

porch across the street.

"Those twins are always turning up," said Vikki as she arrived.

"Yeah," agreed Skip. "I ran into them earlier today. They were buying mini-cassette tapes at the hi-fi store."

Ricardo showed up next.

"Looks like thunderstorms again," he said, glancing at the sky.

"Ricardo, you were supposed to bring a scientist!" Vikki complained, as they gathered on the steps of Patty's house.

"He'll be here. In the meantime, I brought this stuff."

Ricardo unzipped a large gym bag. Out fell a coil of rope, a butterfly net and a small cage.

"I figured if we were going to catch a ghost, we'd need some equipment," he explained.

Vikki shook her head.

"Ricardo, while you were wasting time, Skip and I did some real detective work."

Soon a crowd had gathered on Patty's front lawn.

"What did you find out?" Patty asked Vikki. "Are the ghosts trying to tell us something?"

"There aren't any ghosts," Vikki answered firmly.

"Yeah?" It was Ted Tyson. "What about the message on the driveway?"

"That was written by someone very human—with this!" Vikki held up a can of spray paint. "I found it in Patty's garbage can."

"But what about that creepy green slime?" asked Patty.

"I put some in a jar and stuck it in my refrigerator overnight," Skip explained. "When I took it out, I noticed it had hardened. I recognized the smell, so I tasted it." ➔





"Ugh!" said Ricardo.

"It was actually quite good," Skip said with a smile. "That is—if you like lime."

"Lime?" exclaimed Patty.

"Lime Jell-o!" Skip cried.

"These ghosts are a hoax!" said Vikki. Everybody started talking at once.

"But what about the noises?" Patty asked.

And as soon as she did, the strange whining sounds started again—only this time they seemed to be coming from Vikki's pocket.

"You mean these?" she asked, pulling out two mini-cassette recorders. "I found them hidden in the tree."

"But who put them there?" asked Patty.

"The Tyson twins!" exclaimed Skip. "I saw Ted in the store today, buying tapes!"

"Ted! Tom! Get back here!" An angry man called to the twins as they tried to sneak away from the crowd. It was their father, Tim.

"This prank has gone far enough!" he shouted.

"But Dad," Tom whined. "We didn't make up those ghosts!"

"Yeah," argued Ted. "All we did was add a few things to spook everyone."

"Then there really are ghosts!" said Patty.

The Shocking Answer

Just then it started to rain and the crowd began to move inside Patty's house.

"Hey, wait. My expert is here!" called Ricardo. His expert was a short man in a rumpled raincoat.

"That's Webster Wayne, the Channel 10 weatherman!" cried Skip.

"A weatherman?" asked Patty. "How can he

help with ghosts?"

"Let's go inside," said Vikki. "Ricardo can explain there."

When everyone was safe inside the house, Ricardo started talking.

"I saw Webster talk about this on TV a month ago," he explained.

"About ghosts?" asked Vikki.

"There are no ghosts," said Ricardo. "It's Saint Elmo's Fire."

"Fire?" said Patty.

"It's not really fire," Webster Wayne continued. "The glow you saw can appear on any tall, pointed object—like a ship's mast—during a thunderstorm."

"Or a tall tree?" asked Patty.

"Yes," said Webster. "But it's very rare."

"But what causes it?" asked Skip.


"It's the same principle as lightning," said Webster. "In a lightning storm, the storm clouds carry strong electrical charges. Usually these charges are released through lightning bolts. But the storm sometimes gives a charge to a pointed object like your tree. Then when that charge is picked up by the surrounding air, it glows."

"Then there really aren't any ghosts," said Patty. She sounded disappointed.

"I'm afraid not," said Webster. "And the Saint Elmo's Fire should be gone also. My forecast is for sunny weather."

"Well, Skip," said Ricardo, "are you jealous that I uncovered the last clue in this case?"

"Why do you say that?" asked Skip.

"With that lime Jell-o on your face, you look green with envy." 

**Watch for next month's
Bloodhound Gang
mystery!**



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Kooler News



Kooler Moments in History

Chester Greenwood was a boy with a problem. His ears turned all different colors in winter. First they turned white. Then they turned red. Then they turned blue. No kidding. So Chester did something about it. In 1873, when he was 15 years old, he invented the earmuff. It received a warm welcome.

You know you're Kooler when...

I didn't know that!
The longest recorded flight by a chicken is 302 feet, 8 inches.

Kooler Kids



Julie Horowitz is 16 and she's been a reporter for six years. So far, she has interviewed a famous actor and a well-known news-caster. She works for Children's Express, a news service run by kids. If you want to know about Children's Express, write to Julie at 20 Charles Street, New York, NY 10014.

If you're a Kooler Kid or know of one, send us your photos and letters.



Ask Dr. Know

Dear Dr. Know,

Where did the meaning of cool come from?

Yours,
Curious

Dear Curious,

Being cool is not new. In the 1920's (also called the Roaring Twenties), people used to say "cool your heels" and that meant "wait." In the 1950's, jazz musicians used it to describe music that was great. Then poets and writers who wore black clothes and sunglasses all the time picked it up. They were called Beatniks. They used it to mean what we mean when we say cool. Sometimes they said "Be cool, daddy-o!" But we don't say that anymore.

Mail your Kooler questions to Dr. Know.



you break into an unrehearsed jazz medley on your clarinet at half-time.

Mail us your ideas!



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Red. Blue. Black. Purple. Pants, shirt, socks, shoes. Wear the same color all over your body.

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Cross-country skiing gloves are leather. They buckle at the wrist to keep the cold air out. They have another glove inside. They're warm and fun.

Send your photos and letters to:
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HEY Kids!

Make it Kooler!

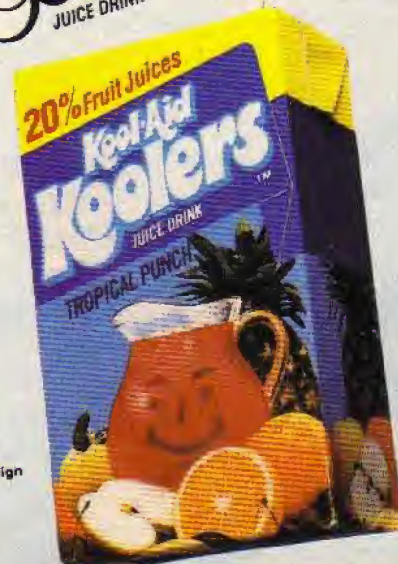
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The Tongue

by Ellen Weiss

Quick—don't think about your tongue! Can't do it, can you?

Well, then as long as you're thinking about your tongue, how about getting to know it a little better? Try moving it around. Terrific, isn't it? Your tongue is the most moveable organ you have. It can move in every direction, because it has lots of muscles and no bones.

Now, about the way your tongue feels. It's covered with little bumps, right? And those bumps are your taste buds, right? Wrong! You can't feel your taste buds at all. They're too small.

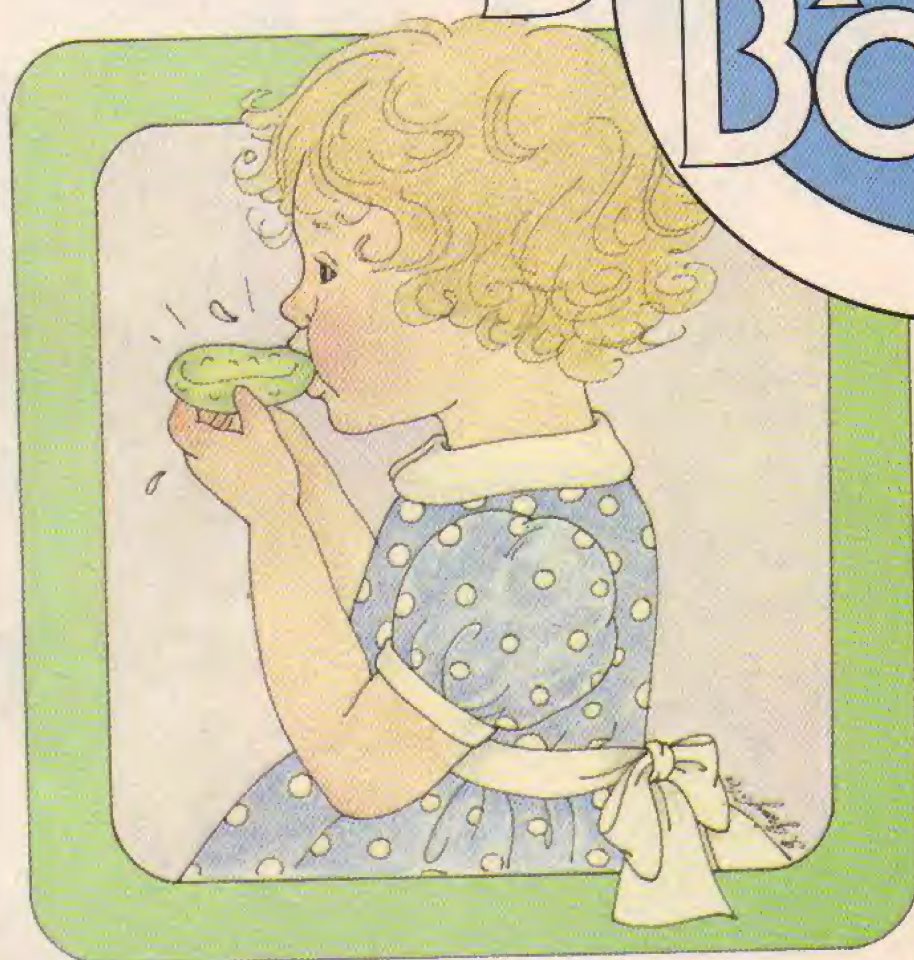
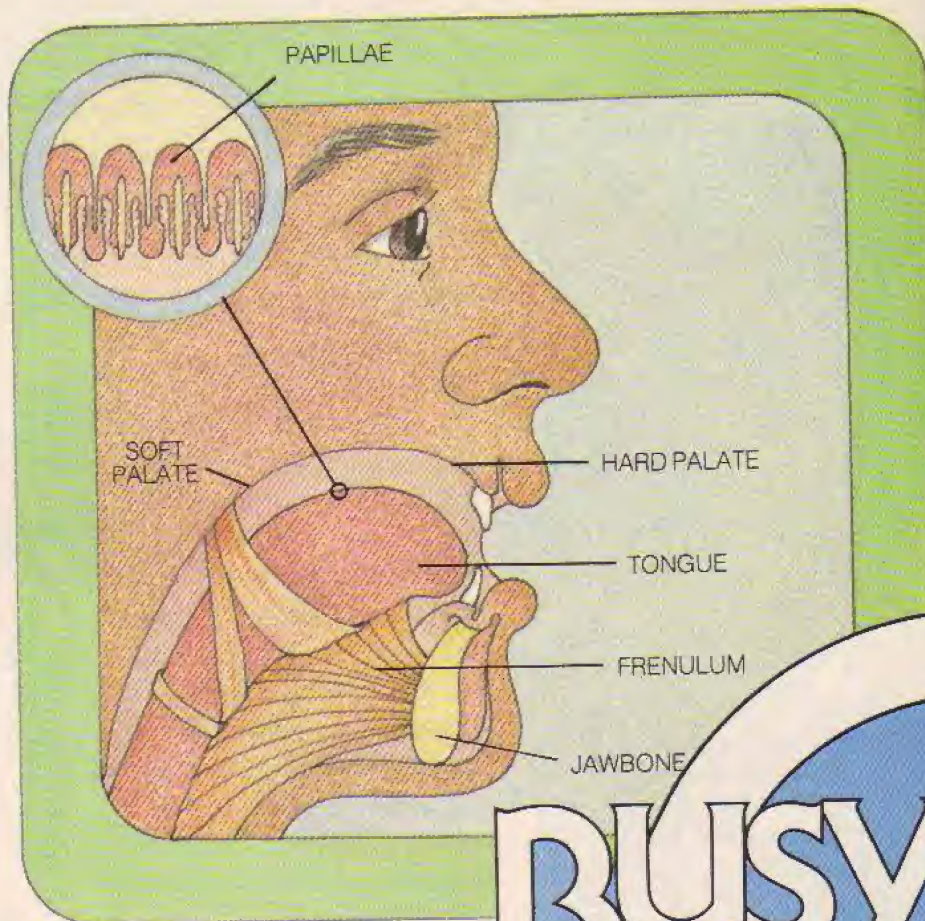
The bumps are called *papillae* (PAPILL-eye). Each one of them has between 90 and 250 taste buds built into its walls. You don't have taste buds just on your tongue, either. You also have some on your soft palate, way up at the back of the roof of your mouth. There are a few in other parts of your mouth, too. You can tell they are there if you pay careful attention next time you eat something tasty.

Your tongue is held down by that stringy doodad that lives underneath in the middle. It decides how far you can stick your tongue out. It's called the *frenulum* (FREN-yuh-lum). You can put that on your list of words to liven up dull moments.

Here's something to think about: if you were a salmon, you'd have teeth on your tongue!

Young Tongue

You lose taste as you get older. Babies are born with lots of taste buds all over their mouths and throats. Most of these fade away over the years. Also, each papilla has only about a third as many taste buds during old age as it did to start with. So, the message is: enjoy that pickle while you can!



The Tongue Olympics

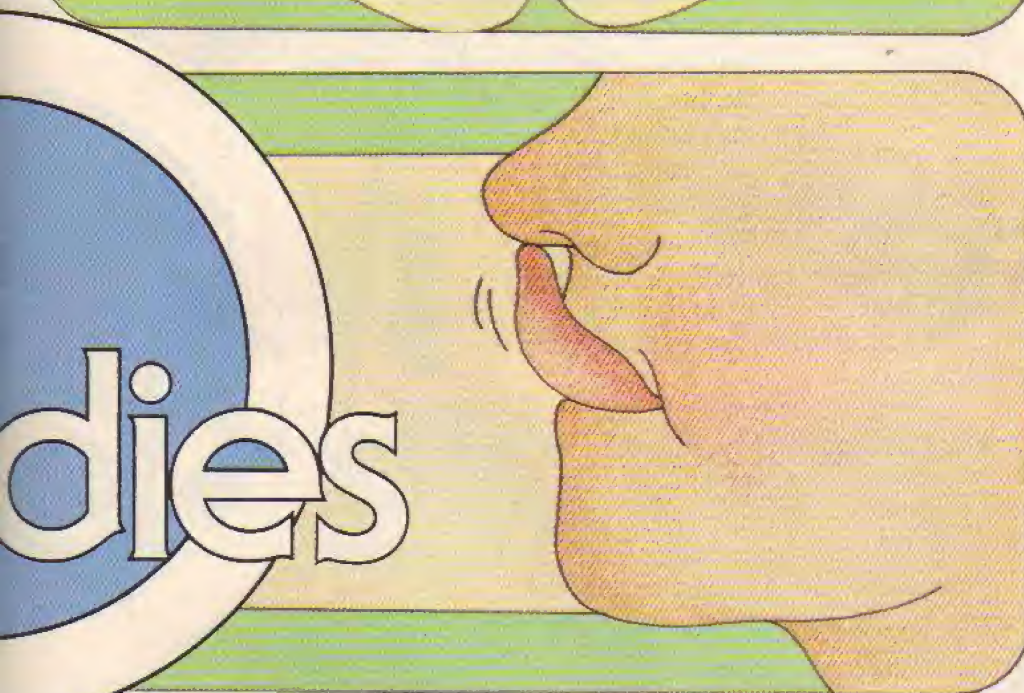
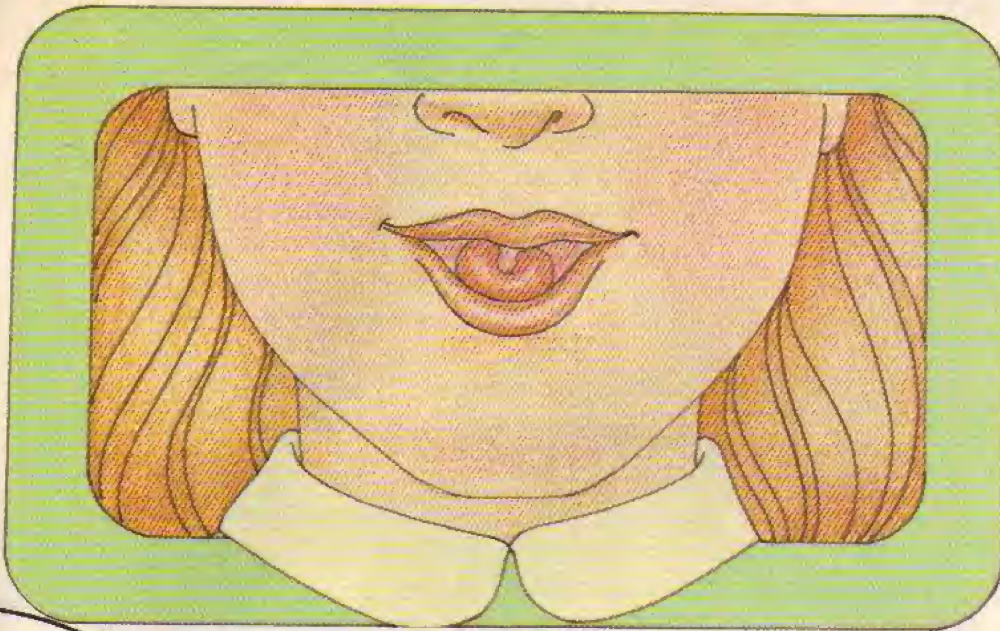
Okay, ready for some exercise? Here are three wonderful and useless things you can try to do with your tongue.

1. Try to roll your tongue up at the sides, as in the picture.
2. Can you flop your tongue over, so that it's upside-down in your mouth?
3. Now for the big one: can you touch your tongue to your nose? Careful— don't sprain it!

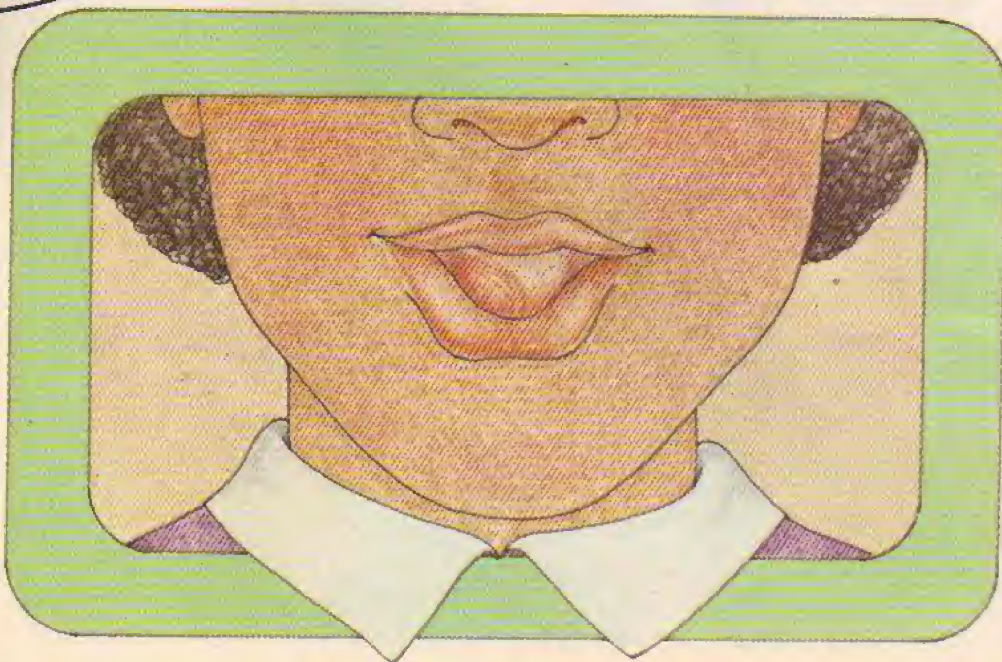
If you can do these things, great! If you can't, don't tie your tongue in knots trying. No amount of effort will make it happen.

It all depends on the tongue with which you were born. Your tongue is formed within the first six to eight weeks that your body is taking shape. If someone in your family can do these things, the chances are that you can, too. It's a little like being a natural athlete. But, also as in athletics, people get better with practice. Some experts think that going around sticking your tongue out isn't such a bad thing.

You should keep one thought in mind, however: there is no earthly reason for doing these three tongue tricks. They won't help you get to college. They won't make you rich, famous, or better than anybody else. ➔



dies



ILLUSTRATIONS © SUSAN GRAY

A Flavorful Experiment

Your tongue is not the same all over. Why? The answer is in your taste buds. Each taste bud can taste only one flavor. To your tongue, there are only four flavors: sweet, salty, sour, and bitter.

The taste buds for these four flavors are not found evenly on your tongue. They're grouped in areas, so you taste sweet mainly in one area of your tongue, sour in another, and so on. Your mission is to find out where these areas are.

What You Need

A spoonful of:

- honey or very sugary water
- very salty water
- lemon juice or vinegar
- very strong instant coffee

Some cotton swabs, like Q-Tips

Four different colored pencils

What You Do

1. Dip your swab into the honey or sugar-water. Now rub it gently over different areas of your tongue, one at a time. Try the front, middle, sides, and back. Where do you seem to taste the sweetness most strongly? You've found... no, not your sweet tooth, your sweet tongue!
2. See the tongue on the right? Shade in the area

that's your "Sweetness Center." (It may not have very sharp borders.)

3. Now, rinse your mouth with plain water. Then repeat Step 1 with a new swab and the salt water. Where does it taste the saltiest? Shade that part on your tongue with a different colored pencil.

4. Do the same with the sour and bitter flavors, rinsing your mouth each time.

Does your tongue picture look like the one next to it? That's a picture of an "average" tongue.

How to Make Your Taste Buds Not Work

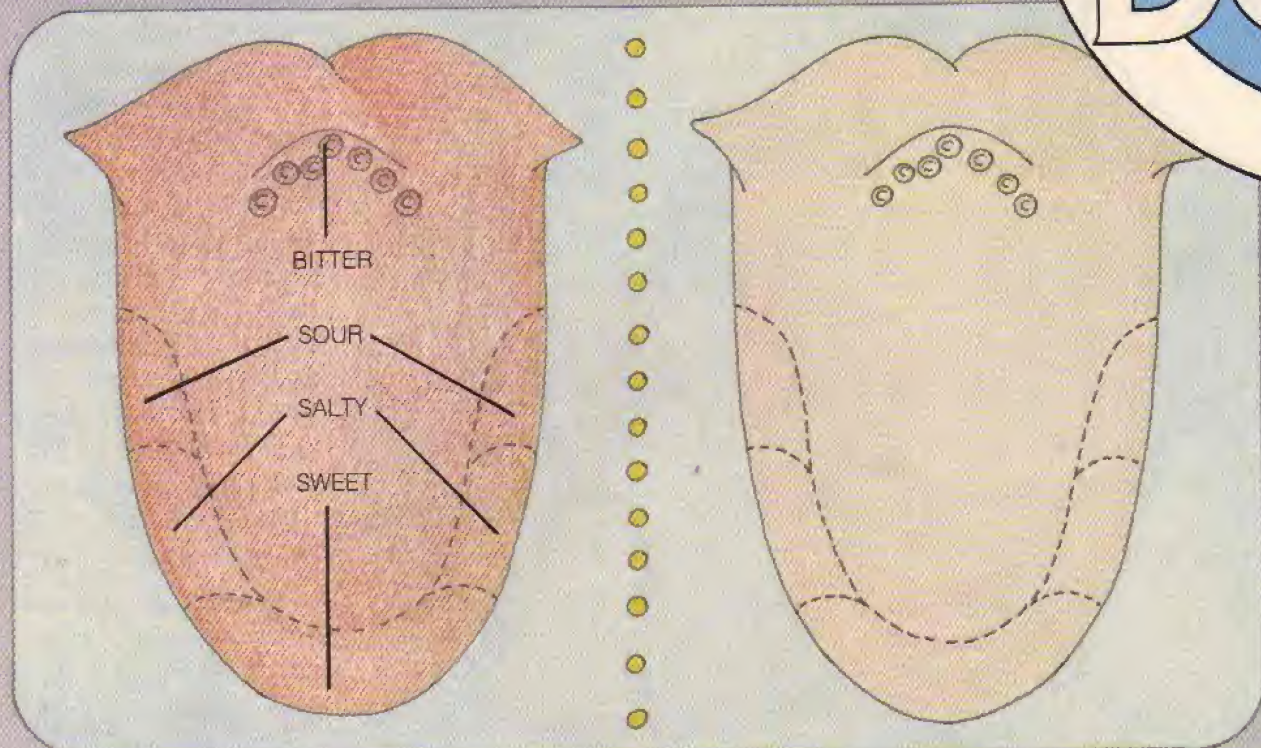
Taste buds need to come into contact with chemicals dissolved in liquid. Then a taste message can be sent to the brain (like "Yick! Lima Beans!" or "Yay! Raspberries!")

That's why a dry tongue cannot taste dry food. You can see it for yourself. With a little difficulty, you can dry out the tip of your tongue.

(Wiping it off is a good start.) When your tongue is really dry, ordinary sugar will taste just like sand.

BUSY BO

ILLUSTRATIONS BY SUSAN GRAY



dies



Tongue Talk

Did anybody ever tell you to "hold your tongue"? That would actually be a fine way of stopping you from talking.

Try making each sound of the alphabet, without using your tongue. Leave it on the floor of your mouth. Pay close attention to what your tongue does for each letter sound. Sometimes it makes a small movement that makes the whole difference.


A speech therapist, someone who helps cure problems of speech, will tell you that the only letter sounds you can make without your tongue are M, P, H, F, and V.

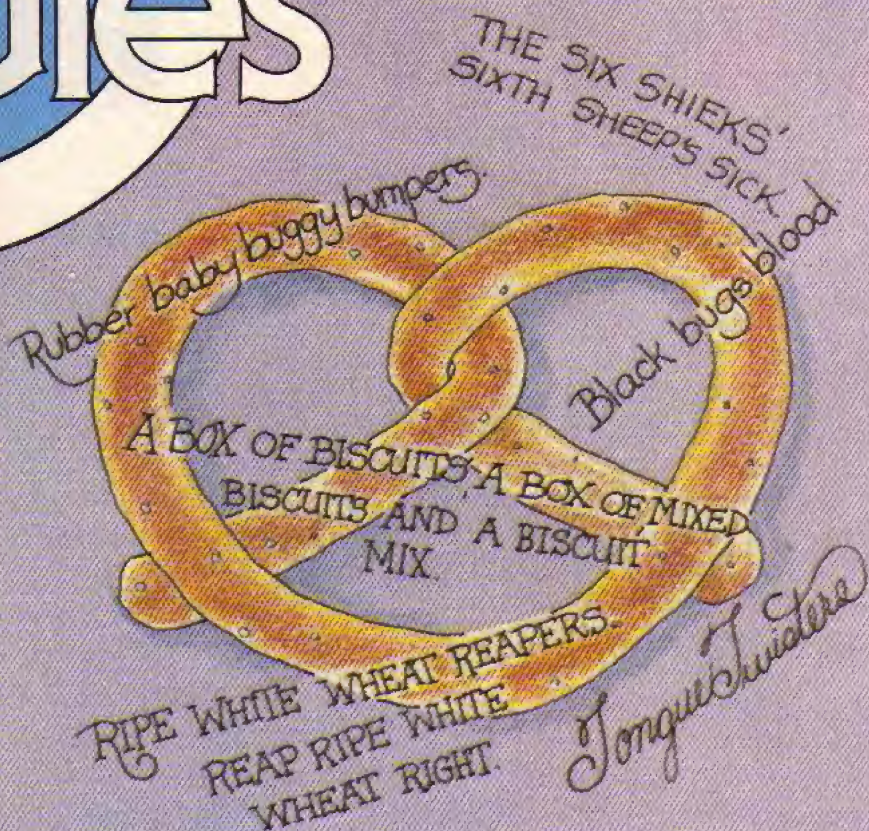
This rule applies to most of us, but not all. Some people who lose their tongues because of illness are able to talk just fine, and nobody, including they themselves, quite knows how.

Twongue Tisters

How come some sentences can turn your mouth into a pretzel? The answer lies somewhere between your brain and your tongue. You see, your brain tells your tongue how to move. But sometimes it tells your tongue to do things that the muscles just can't handle. It's as if your brain is "firing" messages faster than the tongue can "reload."

Practice makes a tongue twister easier to say, and so does age. If you can't say one when you're eight, wait and try again when you're twelve.

You can use the pretzel on the left to help turn your own tongue into a pretzel. See the different sayings on it? Try saying each one three times fast. Lots of luck! 



Any Questions?

by Reba Weiser

Why are flowers different colors?

No one really knows for sure why flowers come in different colors. One reason might be that color, together with a flower's smell, attracts birds and insects. The insects and birds drink the flowers' sweet juice, or nectar. (Bees use the nectar to make honey.) As the insects and birds go from flower to flower, they help flowers reproduce by picking up and dropping off pollen.

Different colored flowers probably attract different insects and birds. For instance, hummingbirds like red flowers. But bees can't see red. So if you want to keep bees from buzzing in your garden, try red flowers. It might work!

Question sent in by Summer Faryards and Katie Mikel,
Ft. Walton Beach, FL.



UNEEMPLOYMENT



Why do people have two sets of teeth?

So that the tooth fairy won't go out of business! But seriously folks...

When you're a baby, you have small teeth that are just the right size for your small mouth. Besides helping you eat and talk, your baby teeth help you out in other ways. They help your jaw grow to the right shape and size. And they save space in your mouth for the hidden permanent teeth growing beneath your gums.

When you get bigger, your mouth gets bigger too. Soon, your baby teeth are too small for your bigger mouth. When you're about six years old, your baby teeth start falling out. Your bigger, permanent teeth start growing in. You also grow large, strong teeth in the back of your mouth—molars—that help you chew.

By the time you are 12, you have all or most of your permanent teeth. And the tooth fairy moves on to the next customer!

Question sent in by Corey Atkins, Paul, ID.

Do you have a question that no one seems able to answer? Why not ask us? Send your question, along with your name, address, and age, to:

Any Questions?
3-2-1 CONTACT
P.O. Box 599
Ridgefield, NJ 07657

What is dry ice? Dry ice is just what it sounds like: it's very cold and it isn't wet! Dry ice is made by freezing carbon dioxide.

When carbon dioxide is frozen, it turns into little flakes that look like snow. Then the flaky material is pressed together and formed into blocks of dry ice.

Why do people sometimes use dry ice instead of plain old ice made from water? Dry ice melts at a much lower temperature than regular ice. It's also much colder than plain ice. So dry ice is great for keeping foods extra-cold and for shipping foods like ice cream.

When dry ice melts, it turns back into carbon dioxide—as a gas. The gas is so cold that it turns water in the air into ice crystals. That creates some foggy special effects. So, the next time you see fog in a movie remember: Dry ice deserves some of the credit. And remember something else: Never touch a piece of dry ice. *Question sent in by Graciela Muci, Caracas, Venezuela.*



Why do some clothes shrink in the wash?

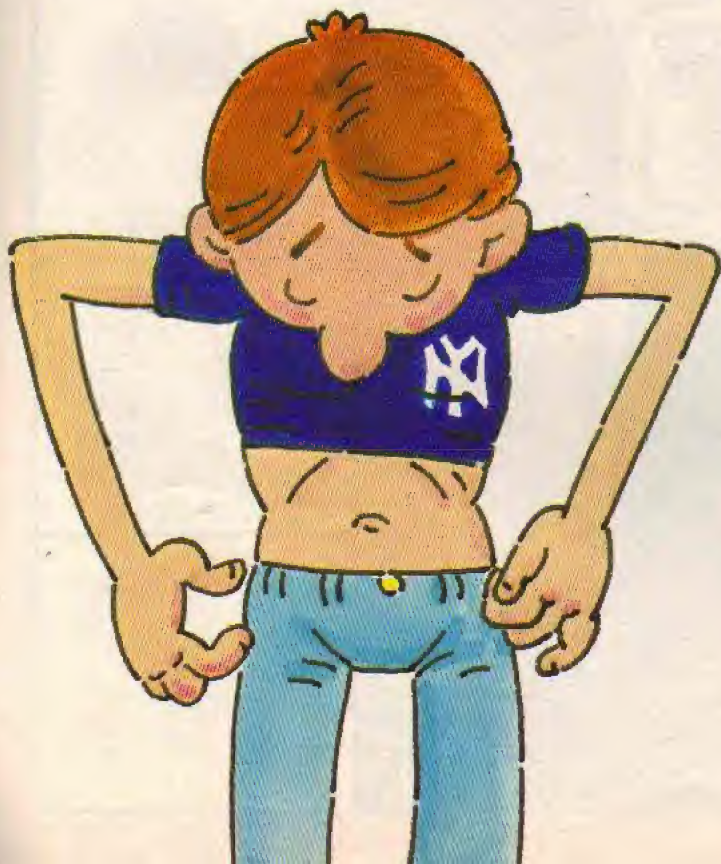
Most clothes that shrink in the wash are made of either wool or cotton. And they usually shrink if they are washed in hot water.

Fibers like wool and cotton shrink because they are hollow. When you put them in hot water, they get smaller. Sometimes the yarn shrinks in the wash because the fibers lose the stretch they had when they were spun. In either case, as the fibers shrink, the yarn shrinks, too. That's why if you put your favorite cotton T-shirt or wool sweater in the washer it may come out looking very clean—and very small.

Makers of some cotton jeans try to help out by pre-washing the pants. Before you buy them, the jeans are washed and shrunk. When you wash them, they can't shrink anymore.

You can help keep your clothes the right size. Stay clear of washing them in hot water and follow the washing directions on the label.

Question sent in by Annette Kazmerski, Bronx, NY.



Fingerprint Kit

Even when there are no other clues, fingerprints come to the rescue. Left at the scene of the crime by the suspect, they can solve the case for any crimestopper.

What You Need

baby powder
clear tape
colored index cards or paper
ink stamp pad
a small soft paintbrush

What You Do

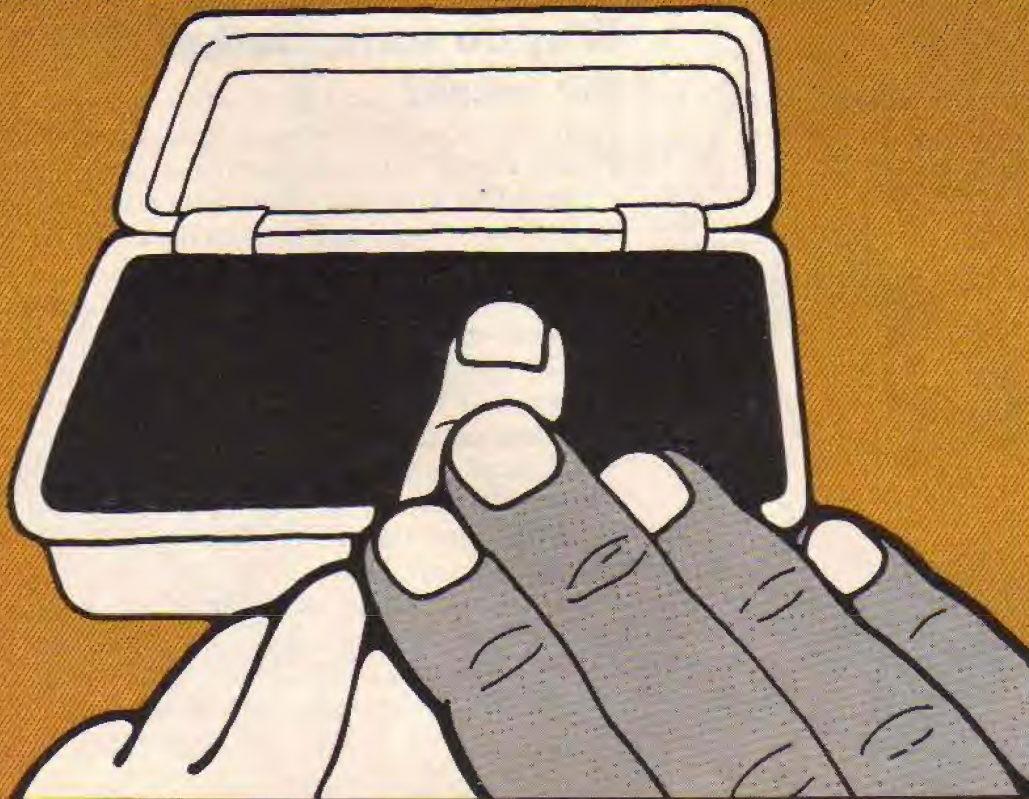
1. To find fingerprints People leave fingerprints almost everywhere. When you touch something, your finger leaves a print made of invisible oil. To find it, sprinkle powder where you think there might be fingerprints. Blow and lightly brush away the excess powder. If there is a fingerprint, the powder will stick to the oil.

If you see a fingerprint, stick a piece of tape

on it. Then lift the tape. The fingerprint will stay on it. Stick the fingerprint on an index card or a piece of paper. Now you can start a fingerprint file.

2. To make fingerprints Press your "suspect's" finger onto an ink pad. Roll the finger from left to right, until it is covered with ink. Now place the left side of the finger on the index card or paper. Roll it carefully to the right. Presto! You have a fingerprint. See if you can match these fingerprints to the ones you find around your home.

3. To compare fingerprints The next step is to study the three main fingerprint patterns. They are the *loop*, the *whorl* and the *arch* (See pictures.) The loop pattern looks like—you guessed it—little loops. The arch pattern looks like little hills. And the whorl pattern looks like a bull's-eye. Everyone's fingerprints look like one of these three kinds. Can you figure out what pattern your own fingerprints have?



WHORL



LOOP



ARCH

ENTER

THE
HIGH-TECH
WORLD OF
COMPUTERS

Silicon Snowflake

Usually you need snow to have snowflakes, but this ice crystal didn't fall from the sky—it was

created on a home computer. Look closely and you'll see paths inside this computer crystal. Can you trace

a route from the triangle on the left to the triangle on the right? For our solution, see the Did It! page.



COMPUTER ART © DAVID B. POWELL

newsbeat

The Connection Machine

by David Powell

Suppose you had 15,000 newspaper articles to read, and you wanted to find every sentence that mentioned the nuclear disaster at Chernobyl in the Soviet Union. How long do you think that would take? Even if you never stopped to sleep or eat, it might take months.

Now suppose you rounded up 15,000 friends and gave each one a different article to read. Then the whole job would take only a few minutes!

That's the idea behind the newest type of computer, called the Connection Machine. It was built by a company called Thinking Machines Corporation in Cambridge, Massachusetts.

Most computers have just one microprocessor. That's the tiny chip that does the actual computing—whether it's addition, subtraction or some other work. If a regular computer has to search 15,000 newspaper articles, it does so one article at a time.

But the Connection Machine has 65,536 processors. They are not very powerful microprocessors, but they are connected so they can all work on a problem at the same time. Working together, they can perform seven million computing operations per second. That makes the Connection Machine one of the fastest computers in the world. It took only two seconds for this super-fast computer to go through 15,000 newspaper articles and pick out every mention of Chernobyl.

Right: The Connection Machine is only five feet tall. Each red light is connected to a part of the computer's memory.

Below: ENIAC, one of the first electronic computers, filled an entire room.

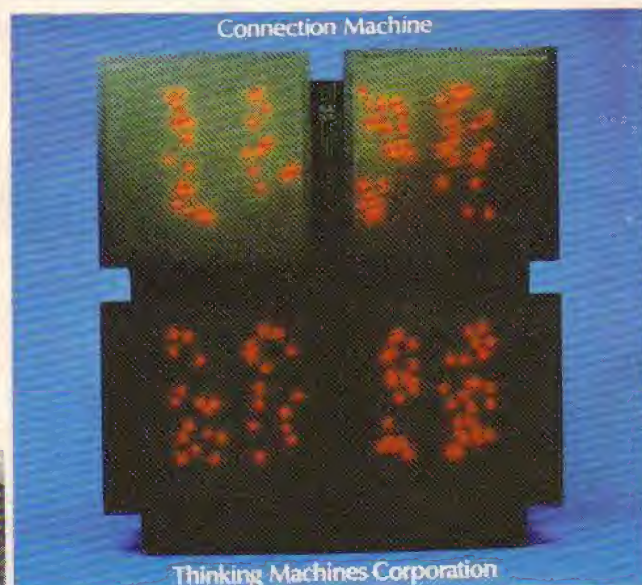
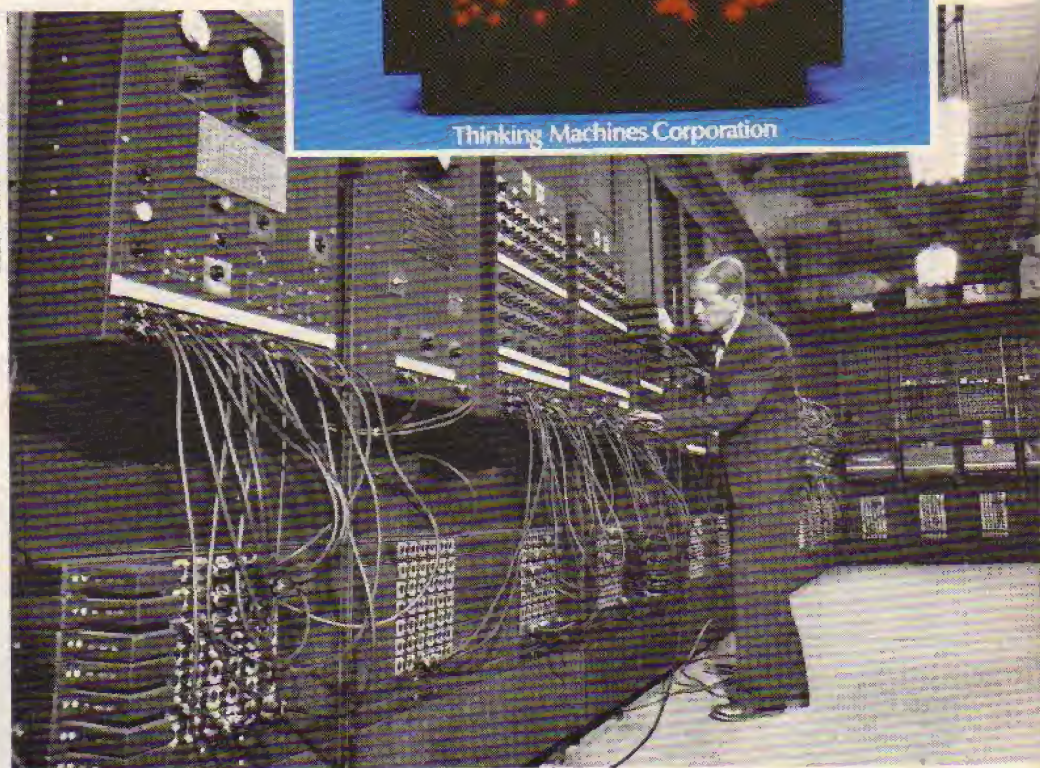


PHOTO COURTESY THINKING MACHINES CORPORATION

PHOTO: JIMBETMAN NEWS-PICTORS



In some ways, the Connection Machine works like your own brain. Inside your compact skull are billions of interconnected brain cells—or neurons. They are all working at the same time, sifting through sights, sounds, feelings and thoughts. Scientists still don't understand exactly how they all work together. But they do know that your brain attacks a problem

from many sides at once, not just one step at a time.

Instead of billions of brain cells, the Connection Machine has just thousands of processors. And the new computer still doesn't come close to your own brain's thinking power. Besides, the Connection Machine costs \$3 million. Your brain comes free (batteries included).

The Slipped Disk Show



ILLUSTRATIONS BY CAMERON EAGLE

Hey there, hackers! It's time for another Slipped Disk Show! A lot of you have been writing in to ask why I call this the "Slipped Disk Show." Okay, one person wrote in—but it's still a good question.

The truth is, the show wasn't named after me. I was named after the show. In fact, my real name is Slipped Disk Show, but call me Slipped Disk for short. (Except for my Aunt Ethel, who calls me Slippy.)

Speaking of names, the name of our first computer questioner is **Shane Miller**, 12, of Pearl, Mississippi. Shane is one of the millions of people who did not write in to ask why I call this the "Slipped Disk Show." Instead, he asks:

"What are Peek and Poke and how are they used?"

Shane, I used to have goldfish named Peek and Poke, but I guess you're not interested in that. The Peek and Poke you're talking about are commands in the BASIC programming language.

The two commands do pretty much what they sound like. POKE stores a number in your computer's memory. There are usually two numbers in a POKE statement. The first number is a location in the computer's memory. The second is

the number you want to store at that location.

PEEK is sort of the opposite of POKE. PEEK will tell you what value, or number, is being stored at a location in your computer's memory. PEEK does not change what is being stored there; it just tells you what is there.

And while we're on the subject, let's take a peek at the next question. It's from **Fred Coffey**, 9, from Sandusky, Ohio. Fred also is not interested in how this show got its name. Fred wants to know:

"I know a computer stores information on a disk. But how does the information get on the disk?"

- Fred, you certainly came to the right place with that question. In fact, you might say disk is my middle name. You see, I was named after this show and...

Anyway, a computer disk is cov-

ered with a thin film of material. In this film are microscopic grains of iron oxide. Each grain is like a tiny bar magnet, and they are lined up in rows on your disk. Like all magnets, each one has a north and south pole. But those north and south poles can be switched if those grains come into contact with a bigger magnet.

Well, inside your disk drive there is a larger magnet, an *electromagnet*. (An electromagnet is one that is created by turning on a current of electricity.) When you "write" on a disk, the large magnet passes over the rows of iron oxide particles. It rearranges the north and south poles of the tiny magnets. This produces a pattern, or a code, of bits and bytes just like the code used in your computer.

That's how information is stored on a disk, and that's all the information we can store in this month's show. Remember, if you have any computer-type questions, just send them to:

**The Slipped Disk Show
3-2-1 CONTACT
1 Lincoln Plaza
New York, NY 10023**

Now, do you want to know why they call it Grant's Tomb?

Slipped Disk is not available on videocassette.



REVIEWS

by Phil Wiswell and Bill Gillette

Football

(Sub-Logic, Commodore 64/128, \$39.95)

Neither of us has ever played a football video game we really liked, but this one comes close. At least, the more we play it, the more strategy we develop and the more we enjoy ourselves. This game is a mental test and it's also a physical one. You can play against the computer or against a friend.

This is a strategy game. Everything is based on picking the right players for the right positions. You call the plays, and there are a lot of them to choose from. You have a thirty-second clock, and that really puts the pressure on. If you don't call a play and hike the ball within that time, you are penalized.

We didn't find the graphics very appealing. In fact, sometimes we had trouble finding the ball. Otherwise, this game has the feel of coaching a real football team.

Wrap-Up

Bill: I'm not a football fan, but I had a lot of fun with this.

Phil: This is not a pure action game. You have to think and plan if you are going to win.



Math In A Nutshell

(Learning Technologies, Commodore 64/128, \$24.95; also for the Apple II)

As you can probably tell by its name, this program was designed for learning and developing math skills. Color graphics help you learn addition, subtraction, multiplication and division. For example, you move a little squirrel on the screen to make your selections.

The little squirrel is not that interesting, but believe it or not, we thought the arithmetic problems were challenging and fun. Each problem is a series of numbers separated by question marks. For example you might see this on screen: $4 ? 0 ? 1 ? = 3$

Your job is to replace the question marks with the correct symbols for either addition, subtraction, multiplication or division. The answer to the one above is $4 + 0 - 1 = 3$. Now, can you solve this?: $6 ? 2 ? 9 ? 4 ? 2 = 14$

Wrap-Up

Phil: I thought I was going to be bored but I really enjoyed the mental gymnastics.

Bill: Yes, it really makes you work hard. But you have to enjoy the challenge.

Ballyhoo

(Infocom, IBM PC, \$40; also for most other home computers)

What would it be like to stick around the circus after the shows have ended for the day? That's exactly what you get to do in this exciting new adventure. We guarantee that what happens in the first few minutes will hook you for hours and hours of play.

This game is about a mystery that no one asked you to solve. You're not a detective, and you're not supposed to know that the daughter of the circus owner has been kidnapped. You're not even supposed to be there. If you're found, you'll get tossed out on your ear, or worse. So don't expect much help from the clowns, jugglers, animal trainers and other circus workers.

You might get some help, if you give some first. But don't try feeding the animals unless you're wearing the gorilla suit!

Wrap-Up

Phil: There are no graphics in this game, but the text is so well written that after two or three minutes you'll begin smelling the cotton candy and the elephants.

Bill: If you like circuses and text adventures, you'll love *Ballyhoo*.

Frankie Goes To Hollywood

(Firebird, Commodore 64/128, \$34.95)

As you might expect from the title, this is a strange game. It's



actually dozens of games put together into one large challenge. The object is to complete the wide-ranging series of tasks and solve the puzzles that will lead you from Mundanesville to the Pleasure Dome.

As you play the game, you gain points in four different personality categories. Your ultimate object is to become a "complete person." Well, we said it was strange.

Frankie Goes to Hollywood starts as a graphics adventure controlled by the joystick. We liked this part of the game very much. Then come a number of challenges. Some are simple, some are very difficult. Each one is different.

This is a game you'll enjoy if you have lots of time on your hands, and we mean *lots* of time. There is no way to save your place in the game! We think it'd be almost impossible to get all the way through in one sitting.



Wrap-Up

Bill: Be warned. This game has nothing to do with the rock group—the title is just a sales gimmick. But it does have many interesting puzzles and the graphics and sound are excellent.

Phil: But who can stick with it when you have to start over from the beginning each time you play?



Ultimate Wizard

(Electronic Arts, Commodore 64/128
\$29.95; also for Atari and Apple II)

This is one of those all-action video games that hooks you right from the first play. If you don't remember the original *Wizard* game, perhaps you've played *Lode Runner*. *Ultimate Wizard* is the same kind of game—you run around mazes of ladders, platforms and passageways picking up treasure and avoiding traps. Only this is the better game, in our opinion.

The mazes are well-designed, with plenty of variety on the action. You run, jump, and climb up and down ropes, use elevators, use magic spells and much, much more. This game is an arcader's delight.

There are 100 different game screens and they become more difficult as you go. And there are six levels of difficulty and ten speed levels for each of the 100 screens. If that's not enough, you can construct your own mazes.

Wrap-Up

Phil: I've stopped playing video games late into the night, but this game has been an exception. I can't stop playing. You'll love it.

Bill: The construction set is a great addition and improvement over the original *Wizard*.

Bop'N Wrestle

(Mindscape, Commodore 64/128,
\$29.95; also for the Atari)

The Body Slam, the Pile Driver, the Flying Body Press and the Head Butt—you may have seen these wild moves in professional wrestling. Now you have a way of doing the Atomic Drop or the Airplane Spin without a chance of getting hurt.

This game is based on the kind of kooky wrestlers you see on TV. By using the joystick or the keyboard, you control your wrestler and try to pin your opponent to the mat. You have to pin nine wrestlers before you are named champion.

We are not professional wrestling fans, and we usually don't like games that feature boxing, karate or other violence. But *Bop'N Wrestle* can be a very funny game, if you play it with a sense of humor. Like professional wrestling on TV, it's more like a *Road Runner* cartoon than real wrestling.

Wrap-Up

Bill: This game plays well, and there are lots of moves to learn, but I got bored after a few dozen matches.

Phil: If you don't take the wrestling too seriously, then *Bop'N Wrestle* can be an amusing challenge. Just leave those Atomic Drops on the screen!



basic training

PROGRAMS FOR YOUR COMPUTER

Election Time

Who's the boss? In this computer game, you are. You've just been elected mayor of your town. Your job is to run the city and win the next election. Your opponent is the town dogcatcher.

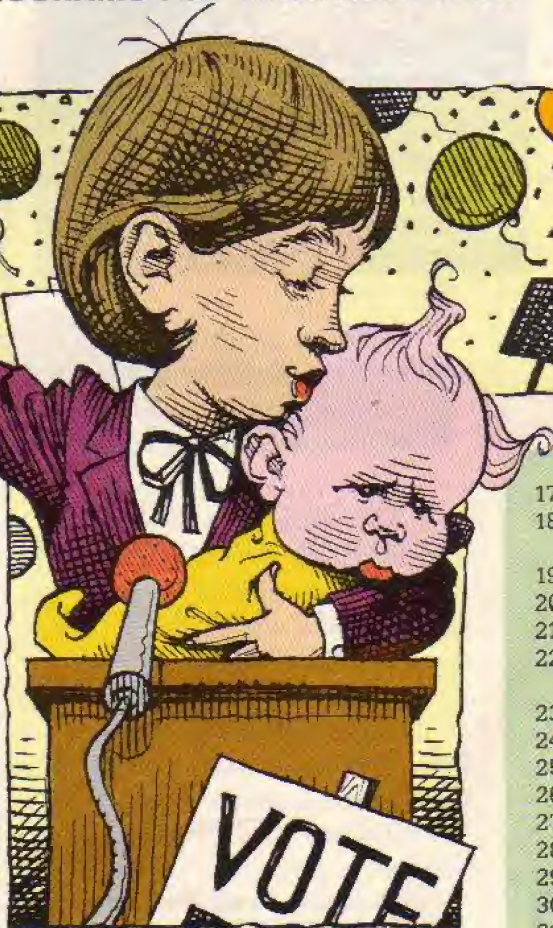
You have 12 months until the next election. Each month you have to decide whether or not to spend some of the town's money. (Press Y to say yes to buying something and N to say no.) The actual cost of the item will always be higher than the estimated cost.

You have \$100,000 and if you spend more than that in 12 months, you lose. But here's the catch—if you don't buy something the voters want, then you'll lose votes in the next election. Even worse, if you keep saying no to things the voters want, you might get kicked out of office before the election! But you can also get kicked out for buying things the voters don't want. (No one said being mayor was easy!)

The program is written for Apple II computers. Following it are instructions for adapting it to other machines.

Thanks to Scott Marino, 12, of Swampscott, Massachusetts for electing to send us this program. It gets our vote as a great game.

ILLUSTRATIONS BY SANDY HUIFAKER



Apple

```

10 B = 100000: T = 0: N = 0
20 HOME
30 PRINT "CONGRATULATIONS!
  YOU'VE BEEN ELECTED
  MAYOR."
40 PRINT "TRY TO MAKE IT TO
  THE NEXT ELECTION, ONE
  YEAR FROM NOW."
50 FOR DE = 1 TO 3000: NEXT DE
60 HOME
70 FL = 0
80 PRINT "BUDGET: "; B
90 IF B < 1 THEN 510
100 T = T + 1: IF T > 12 THEN 300
110 PRINT "MONTH: "; T
120 RESTORE
130 X = INT (RND (1) * 16) + 1
140 IF X > 14 THEN FL = 1
150 FOR I = 1 TO X: READ P$, C:
  NEXT I
160 PRINT P$
  
```

```

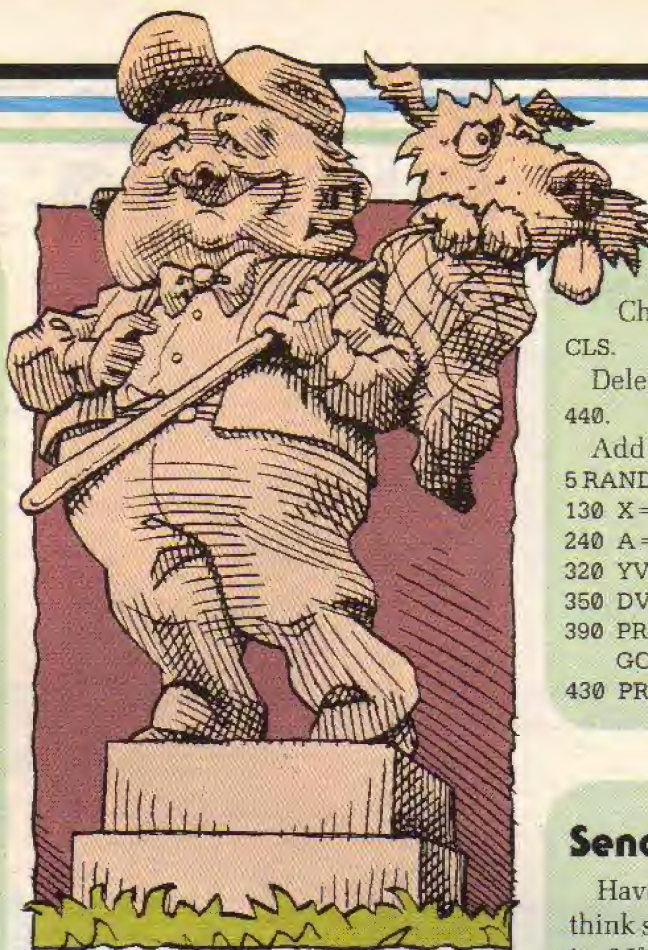
170 PRINT "ESTIMATED COST: "; C
180 PRINT "DO YOU SPEND THE
  MONEY?"
190 INPUT A$
200 IF A$ = "Y" THEN 240
210 N = N + 1
220 IF N > RND (1) * 6 + 6 THEN
  GOTO 470
230 GOTO 280
240 A = INT (RND (1) * (C / 10))
250 C = C + A: B = B - C
260 PRINT "ACTUAL COST: "; C
270 IF FL = 1 THEN N = N + 1
280 FOR DE = 1 TO 3000: NEXT DE
290 GOTO 60
300 HOME
310 PRINT "ELECTION TIME!"
320 YV = 2000 + INT (RND (1) *
  2000)
330 Q = N * 100
340 YV = YV - Q
350 DV = 2000 + INT (RND (1) *
  500)
360 IF DV = YV THEN 300
370 FOR X = 1 TO DV STEP 2
380 VTAB 6
390 PRINT "THE DOGCATCHER
  GOT "; X: " VOTES"
400 NEXT X
410 FOR X = 1 TO YV
420 VTAB 9
430 PRINT "YOU GOT "; X: " VOTES"
440 NEXT X
450 IF DV < YV THEN PRINT "YOU
  WON!!!" : GOTO 540
460 IF DV > YV THEN PRINT "YOU
  LOST. TOO BAD.": GOTO 540
470 HOME
480 PRINT "YOU ARE KICKED OUT
  OF OFFICE"
490 PRINT "THE ONLY JOB YOU
  CAN GET IS AS DOGCATCHER"
  
```



```

500 GOTO 540
510 PRINT "THERE'S NO MONEY
LEFT IN YOUR BUDGET."
520 PRINT "YOU LOSE"
530 GOTO 550
540 PRINT "YOU HAD ";B;" LEFT IN
THE BUDGET."
550 PRINT "WANT TO PLAY
AGAIN?"
560 INPUT A$
570 IF A$ = "Y" THEN 10
580 END
590 DATA THE LITTLE LEAGUE
NEEDS NEW UNIFORMS.,500
600 DATA FIREWORKS FOR JULY
4TH PICNIC.,5600
610 DATA A FLOOD HITS TOWN.
REPAIRS ARE NEEDED.,30000
620 DATA DOGCATCHER NEEDS
NEW TRUCK.,15000
630 DATA VOTERS WANT A NEW
PARK.,17000
640 DATA STREETS ARE FULL OF
POTHOLE.,12500
650 DATA FIRE HOUSE BURNS
DOWN., 50000
660 DATA STREETLAMPS NEED
NEW LIGHTBULBS.,780
670 DATA TOWN COMPUTER
BREAKS, 3500
680 DATA GARBAGE
COLLECTORS STRIKE FOR
HIGHER PAY,42000
690 DATA VOTERS WANT TO PUT
UP STATUE IN HONOR OF
TOWN DOGCATCHER.,14200
700 DATA BRIDGE COLLAPSES.,
42000
710 DATA YOUR COUSIN WANTS A
JOB WITH THE CITY,23000
720 DATA YOUR HOUSE COULD
USE A SWIMMING POOL, 19700
730 DATA YOU COULD USE A
VACATION IN BERMUDA, 6200
740 DATA POLICE WANT TO
TRAIN OFFICERS IN
BALLET,12400

```



IDM

Change all HOME statements to CLS.

Delete lines 370, 380, 400, 410, 420, 440.

Add or change these lines:

```

5 RANDOMIZE TIMER
130 X=INT(RND*16)+1
240 A=INT(RND*(C/10))
320 YV=2000+INT(RND*2000)
350 DV=2000+INT(RND*500)
390 PRINT "THE DOGCATCHER
GOT ";DV;" VOTES."
430 PRINT "YOU GOT ";YV;" VOTES"

```

Send Us Your Programs

Have you written a program you think should be in BASIC Training? If you have, then send it to us at:

BASIC TRAINING
3-2-1 CONTACT
1 Lincoln Plaza
New York, NY 10023.

If we like it, we'll print it, and send you \$25 and a T-shirt.

All programs must be your original work. Remember to include a note with your program that tells us your name, age, and T-shirt size. Don't forget to tell us the brand of computer you used and to include a short description of what the program does.

Atari 400/800/400XL/600XL

Change all HOME statements to PRINT CHR\$(125).

Add or change these lines:

```

5 DIM A$
130 X=INT(RND*16)+1
240 A=INT(RND*(C/10))
320 YV=2000+INT(RND*2000)
350 DV=2000+INT(RND*500)
380 POSITION 8,1
420 POSITION 12,1

```

Commodore 64/128

Change all HOME statements to PRINT CHR\$(147).

Delete lines 370, 380, 400, 410, 420, 440.

Change these lines:

```

130 X=INT(RND*16)+1
240 A=INT(RND*(C/10))
320 YV=2000+INT(RND*2000)
350 DV=2000+INT(RND*500)
390 PRINT "THE DOGCATCHER
GOT ";DV;" VOTES."
430 PRINT "YOU GOT ";YV;"
VOTES"

```

Corrections

The Atari program, "Dropping Blocks," in our June issue contained two errors. Delete line 100 and change line 140 to:

```

140 IF STRIG(0) = ) AND STICK(0) = 15
THEN 160

```

In the Apple version of "A Place In the Sum," in our June issue, change line 160 to:

```

160 IF N$(P*2-1) < "-" THEN 120

```


PIPELINE PUZZLER

by Richard Chevar

You might think this puzzle is all wet. But try it and you'll find it's smooth sailing.

In this system of pipes and water tanks, there are two kinds of valves. The green valves will open only when water enters from

two directions. The red valves will open when water enters from just one direction.

The object is to get the water to flow out of the faucet at the bottom of the page. Some tanks are already filled with water, others

are empty. You can put water into one more tank. Which tank must you fill up to get this system to work?

Don't be a drip, get that water flowing! And tanks a lot.

Answer on the Did It! page.

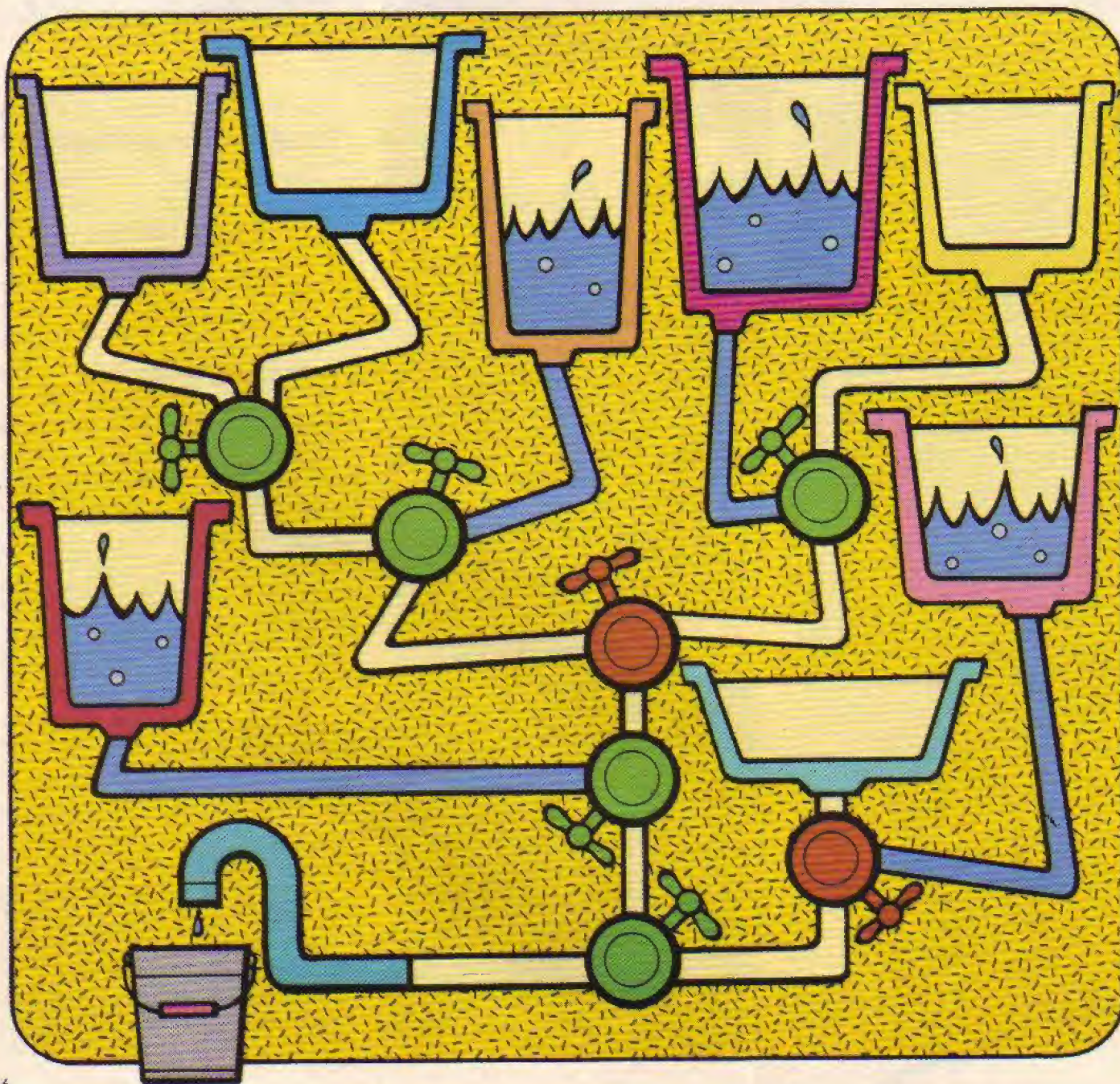


ILLUSTRATION BY BRAD HAMANN

Letters

Wild About Animals

Dear CONTACT,

Your magazines are very good. My favorite ones are with animals in them. I would appreciate it if you would keep sending out issues about animals.

Jessica Harper
Dutchess County, NY

Dear Jessica,

We hope you saw our special October pet issue. Soon you'll find an article about zoo dentists who care for the teeth of lions, tigers and elephants. Now that'll be a whale of a story!

Throwing A Curve

Dear CONTACT,

I enjoy your magazine very much. It tells me all I need to know about science and technology. I really enjoyed the May issue (Sports and Health). Now I know how to throw a curveball.

Teddy Bowers
Troin, GA

Dear Teddy,

We're glad to hear we helped your baseball game. It's a good thing we didn't tell you how to throw a spitball. Messy, messy!

Horse Lover

Dear CONTACT,

I really loved the story about Sunshine and the Adopt-A-Horse program (April 1986). I loved it because my family used to own a race horse named "Daisy's Nacho." My uncle used to own six horses and now he owns seven or eight.

Julie Keenan
Millbury, MA

Dear Julie,

"When it rains," it pours—and fills our mailbox.

We never realized we had so many horse lovers among our readers.

PHOTO © RUSSELL MILLER



When CONTACT visited Disney World, we ran into a famous fan reading our favorite magazine...

Spellbound

Dear CONTACT,

In February, kids in my school, Captain Isaac Paine School, were in the National Spelling Bee. I won the classroom and school district spelling bees. Then I had to go to the state spelling bee, where I had problems. I was nervous when I was up in front of the microphone. So I wasn't surprised when I went down on the first word, "ninetieth."

Judith Spear
Foster, RI

Dear Judith,

WOW! It's great that you made it to the state spelling bee. Maybe next year you'll be a winner. But no matter, you're a winner with us. Congratulations!

ENTER Here

Dear CONTACT,

Why do you have an eight-page computer section set apart from

the articles that are more interesting? I don't have a computer and a lot of other people don't either. So why do you print such a large section of ENTER?

Amy Judkins
Bellevue, WA

Dear Amy,

ENTER used to be a separate magazine, but now it's printed inside CONTACT. A lot of our readers are very interested in computers and they like the ENTER section. Besides, you don't need a computer to do the puzzles and games in the ENTER section. So now there's something for everybody!

Oops!

Dear CONTACT,

In the May 1986 EXTRA!, there is a mistake in the instructions for Math-A-Magic. It should say: "The first number should be larger than the last number." If the first number isn't larger than the last, then the number becomes negative when you subtract!

Ching Liu
Trumbull, CT

Dear Ching,

OOPS! Because of a printer's error, the one sentence that should have been there wasn't. You do have to subtract the smaller number from the larger. Thanks to everyone who wrote in.

We Want Mail!

Dear Readers,

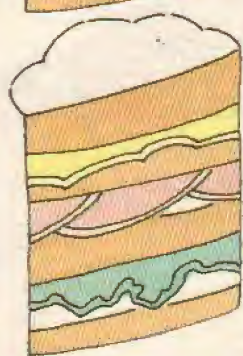
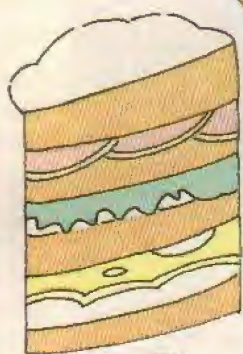
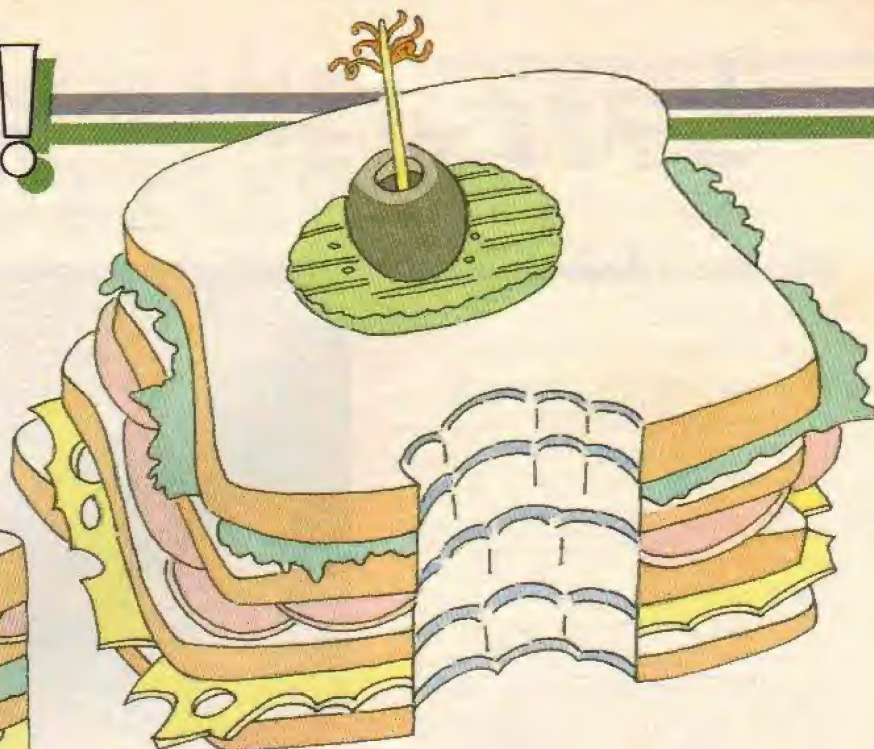
We really love hearing from you. The questions, ideas and complaints we get help us make CONTACT a better magazine. So why not drop us a line? We can't answer every letter, but we do read them all. Send your mail to:

3-2-1 CONTACT: Letters
P.O. Box 599
Ridgefield, NJ 07657

Extra!

by **Ellen R. Mednick**

Sharpen your pencils and get ready for some EXTRA! fun and excitement.



Mystery Bite

Someone took a bite out of this sandwich. Can you find the missing piece? For the answer, check out the Did It! page.

A Sticky Problem

Finally, a rebus that answers the age-old question: **What famous food sticks to the roof of your mouth after lunch?**

To unstick the answer, add and subtract the letters of the words and objects drawn here. Follow the order shown by the plus and minus signs. When you've gotten to the equal sign, unscramble the leftover letters. They spell out the answer to our nutty puzzle. Check the Did It! page for the answer.

PONY +



+



- A +



- HIP +

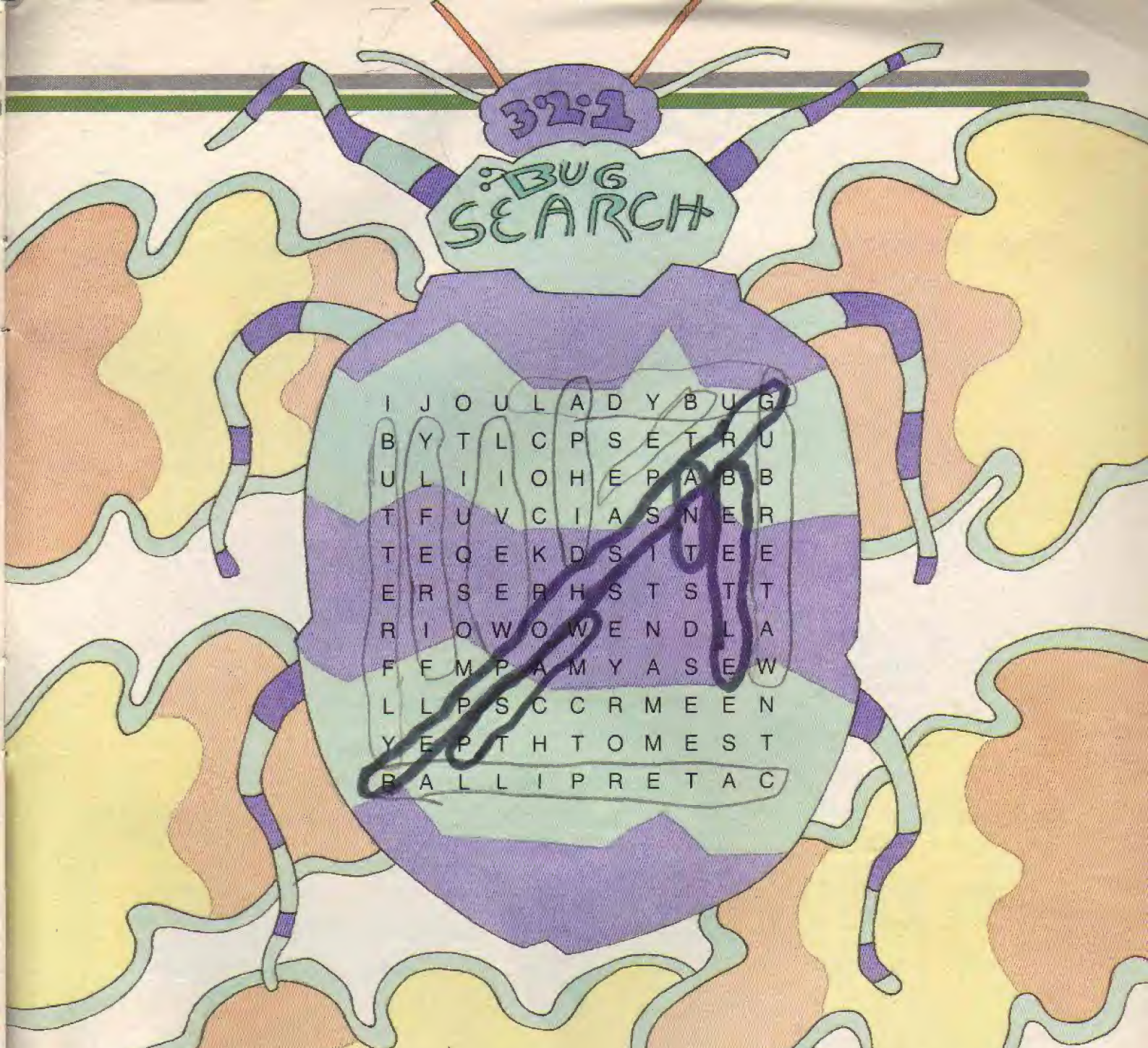


- S + JUDGE + SAND - B -



=

Write the answer here:



I J O U L A D Y B U G
B Y T L C P S E T R U
U L I I O H E P A B B
T F U V C I A S N E R
T E Q E K D S I T E E
E R S E R H S T S T T
R I O W O W E N D L A
F F M P A M Y A S E W
L L P S C C R M E E N
Y E P T H T O M E S T
B A L L I P R E T A C

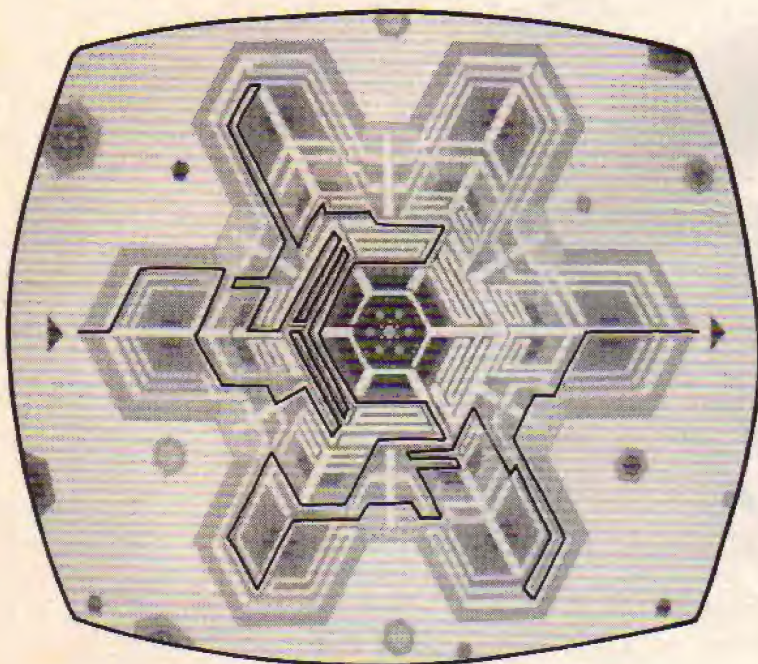
Bug Search

Want to beat the bedbug blues? Then see how many insects you can find hidden in this word search. The bugs are written in CAPITAL letters and go across, backwards, up, down or diagonally. When you're finished, the leftover letters will spell the answer to this buggy riddle: What did one Hollywood fly say to the other Hollywood fly?
For the answer, see the Did It! page.

- | | |
|---------------|------------------|
| ANT ✓ | WEEVIL ✓ |
| GRASSHOPPER ✓ | WATERBUG ✓ |
| WASP ✓ | COCKROACH ✓ |
| BEETLE ✓ | LADYBUG ✓ |
| APHID ✓ | praying MANTIS ✓ |
| FIREFLY ✓ | FLEA ✓ |
| honey BEE ✓ | MOSQUITO ✓ |
| CATERPILLAR ✓ | MOTH ✓ |
| BUTTERFLY ✓ | |

—Did It!—

Silicon Snowflake



Pipeline Puzzler

The water goes in the yellow tank.

Mystery Bite

Answer: The top left bite.

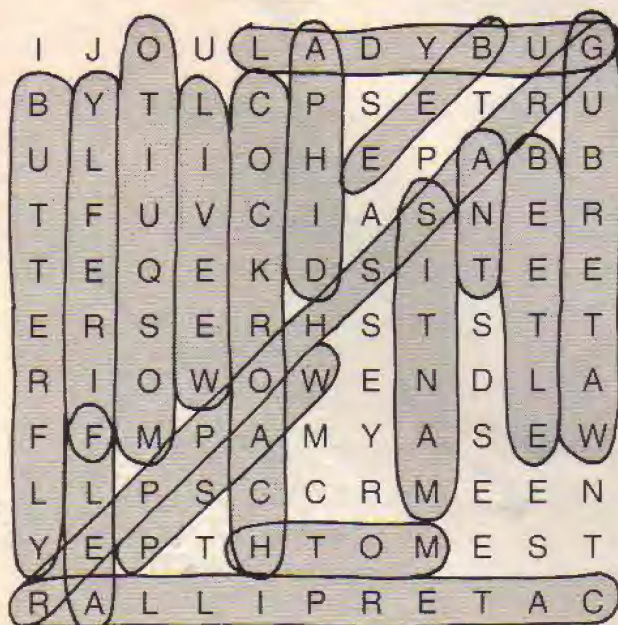
A Sticky Problem

Answer: PEANUT BUTTER AND JELLY SANDWICH

Thank You!

Thanks to our student intern Andrew Nachison for all his work on this issue.

Dug Search



Answer: I just passed my screen test.

Next Month!

Here's a quick peek at what's in store for you next month in 3-2-1 CONTACT.

Star Trek— The New Movie

The great space adventure is back—and back to the future!

Time Travel

It just may be possible—CONTACT finds out how!

Trip to the North Pole

Santa may not be there—but you'll meet six courageous explorers who were.

Plus Tomorrow's News Today, the Bloodhound Gang, ENTER Computer Section and much more.